GENESIS OF ENVIRONMENTAL EDUCATION POLICY IN BOTSWANA: CONSTRUCTION AND INTERPRETATION

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ABSTRACT

This study is based on the 1994 Revised National Policy on Education (Botswana Government, 1994) that introduced environmental education into the Botswana's education system. The main goals of this study were to understand the genealogy of and to critically analyze governmentality associated with environmental education policy in Botswana. Drawing on a post-structural genealogical approach to the subject matter (following Foucault) global historical events and their influence on policy in Botswana, views on environmental education and interpretation, and power relations in environmental education policy discourses were investigated. An investigation was conducted through document analysis, interviews, focus group discussions and observations.

The analysis revealed that power relations have historically transcended environmental education policy discourses from global, regional to national levels. The exercise of power through international bodies, and bilateral and multilateral agreements has impacted on Botswana enabling her to enact policies to address socio-ecological crises or regulating them to sustainably utilize natural resources. However, evidence has shown that although Botswana accepted and introduced environmental education, structures were not ready for its implementation and hence some contextual problems are experienced by teachers in schools. The Revised National Policy on Education (RNPE) was constructed through a consultative process, but the final decision on what goes into the policy text was decided from the top (i.e. by the Ministry of Education senior officials). It emerged from this study that Botswana has inconsistently adopted sustainability and conservation-protection discourses in environmental education policy. The mix of the two discourses shows continuity of the protectionist-conservationist discourses and emergence of the current sustainable use discourse, creating a complex discourse environment. The study also revealed that in including these primarily western scientific discourses, other discourses were marginalized or excluded, which revealed continuity with colonial education discourses.

The findings also revealed variance in the understanding of environmental education. The majority of the teachers understood and normalised new knowledge in environmental education as Environmental Science or Science, and equated environmental management activities with environmental education. Teachers deployed new governmentalities and normalizing strategies by following the traditional conservation and science epistemological and pedagogical discourses. They exercised various self-governing strategies to respond to the RNPE requirement regarding environmental education. The findings highlight the need for re-conceptualization of environmental education at macro (at Ministry of Education) and micro level. There is a need to harmonize the variation in policy interpretations and clarification of the conservation/environmental education and sustainability discourses running parallel in schools or to work more explicitly with multiple discourses. It has also emerged that teacher support mechanisms need review to enhance policy implementation. The study recommends that further and explicit analysis of environmental education discourses is critical for shaping the future of environmental education policy development and interpretation within Botswana's education system.

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ACRONYMS AND ABBREVIATIONS

AECB	Association of Environmental Clubs of Botswana
CDA	Critical Discourse Analysis
DoEA	Department of Environmental Affairs
DWNP	Department of Wildlife and National Parks
EEASA	Environmental Education Association of Southern Africa
EE	Environmental Education
IEEP	International Environmental Education Programme
IUCN	International Union for Nature Conservation
MoE	Ministry of Education
NCS (A)	National Conservation Strategy (Agency)
NDP	National Development Plan
NEPAD	New Economic Partnership for Africa
NEEPC	National Environmental Education Planning Conference
PTA	Parents Teachers Association
RNPE	Revised National Policy on Education
SADC-REEP	Southern Africa Development Community-Regional Environmental Education Programme
SIDA	Swedish International Development Authority
SMT	School Management Team
UNCED	United Nations Conference on Environment and Development
UNDESD	United Nations Decade of Education for Sustainable Development
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations International Children Educational Fund
USAID	United States Aid for International Development
VDC	Village Development Committee
WCS	World Conservation Strategy
WWF	World Wide Fund for Nature Conservation
WSSD	World Summit on Sustainable Development.

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PART A : ORIENTATION TO THE STUDY

CHAPTER 1

INTRODUCING THE RESEARCH QUESTIONS AND GOALS

1.1 Introduction to the study

This chapter provides the rationale for this research. It introduces the goals, key questions, and concepts that guided the research. It introduces the research and my motivation for embarking on it. It provides an outline and a brief summary of each chapter. The process of education policy reform in Botswana is a result of numerous factors associated with historical developments in the education system. Contextual forces linked to international scenarios determined the relevance of these interacting factors. Botswana, like most of the less industrialized countries globally, has realized the importance of educational reform to keep abreast with global trends to ensure social, political and economic prosperity. The 1977 National Education Policy (Botswana Government, 1977b) and 1994 Revised National Education Policy on Education (Botswana Government, 1994) reflect these.

The 1977 educational reform was dominated by a need to improve education quality, accessibility, equality and equity, as there were a number of people who were either economically, socially or geographically disadvantaged during the colonial era. Issues of the environment and environmental education were peripheral and hence did not feature in early post-independence education policy. Issues of expanding the provision of basic education, liberalizing education and vocationalizing education were of primary concern to policy makers in the early years of independence. Shifting of thinking towards inclusion of environmental concerns occurred in the early 1990s following internal and external campaigns for the incorporation of environmental education into the formal education system. Unlike in some countries where educational reform is mainly guided by political parties' manifestoes, incorporation of environmental education into the Botswana education system was the result of an education commission.

This study is based on the 1994 Revised National Policy on Education (Botswana Government, 1994). It is conducted with the intention of informing future policy construction and "bringing about change not only to educational practice but also to the current ways in which educational policy is produced, processed and received" (Kenway, 1990: 5).

1.2 Context of the study

Environmental education was introduced into the formal education system through the 1994 Revised National Policy on Education (Botswana Government, 1994). The policy was based on the 1992 Presidential Commission on Education report. The Commission had recommended among other things, that environmental education be introduced into the national curriculum in Botswana. In April 1994 the government accepted this recommendation. The policy indicates that environmental education should be introduced across the curriculum and into both in-service and pre-service teacher education (Botswana Government, 1994) (see chapter 6).

The 1994 Revised National Policy on Education (Botswana Government, 1994) strengthened related national policy initiatives legitimizing environmental education. Among these policies are the World Conservation Strategy (IUCN/UNESCO/WWF, 1980), Agenda 21 (United Nations, 1992) and the National Policy on Natural Resources Conservation and Development (Botswana Government, 1990) to name a few. These policies call for environmental awareness and training to promote sustainable development. The National Vision 2016 (Botswana Government, 1997a) calls for an informed and environmentally educated nation. This study probes the policy decisions and processes that led to the introduction of environmental education into the curriculum. The research takes a genealogical approach to the development and implementation of environmental education policy in Botswana.

1.3 Motivation for the study

The motivation for this research arose from my own experience as a teacher and teacher educator engaged in teacher education, and as a researcher with passion for the

environment. It also arose from the influence of my background as an Environmental Science and History graduate with a postgraduate qualification in environmental education. I had taught geography at senior secondary school level for seven years, taught conservation education and environmental education for more than four years, and had been an Environmental Education Officer for over two years with the Ministry of Education. My masters degree was in environmental education, and focused on exploring strategies for introducing environmental education at secondary school level. Through experience as an environmental education practitioner in the informal and non-formal education sectors I realized that most of the teachers were uncomfortable with environmental education even after it was legitimized through the 1994 Revised National Policy on Education as an educational innovation. As an Environmental Education Officer I was more exposed to teachers' resistance or outright and open rejection of the policy. However, there were some who were enthusiastic about it including some school administrators. More recently, as a lecturer at the University of Botswana, I realised that most of the teacher trainees anticipated administrative challenges in schools in trying to implement the policy. Through community service, I participated in the national training of trainers' workshops in partnership with the Ministry of Education and Non-Governmental Organisations. We trained education officers, school heads and teachers. Through this initiative I realized that much needed to be done since there was no follow-up mechanism to bring about the anticipated multiplier effect process.

A combination of my previous experience, interest and professional context influenced this research project focus and choice of theoretical framework. I was inspired to do this research after being a participant and player in a number of national and local committees on environmental education. My two years of service as a curriculum development officer responsible for coordination of environmental education in the national curriculum (1998 - 9) exposed me to challenges that motivated me to make a contribution to policy processes. The responsibility of making curriculum policy statements that led to practical and measurable outcomes was a further motivation.

Working at an institution of higher education gave me the opportunity to critically study education policy on environmental education. My previous research related to education policy motivated me to venture deeper into curriculum policy research. In my earlier research I interviewed teachers, school heads and education officers (Ketlhoilwe, 2003). The focus of this earlier research project was on the role of education officers and school heads. It was from this study that my interest in environmental education policy research grew as I realized that there was great potential for research in this area. The outcomes of the research showed that there was

- Lack of understanding of the national education policy with regard to environmental education,
- Lack of understanding of environmental education as a concept,
- Lack of understanding with regard to how environmental education should be infused and integrated into the curriculum or specific subjects,
- Limited or no support structure from the education system, and
- Teachers, school heads and education officers' attitude towards environmental education was an impediment to policy implementation (Ketlhoilwe, 2003).

From this previous research I felt motivated to venture into unearthing and deepening my understanding of the factors shaping this scenario. That is why I decided to apply an historical and post-structural approach to the investigation of policy. This challenged me to study policy processes more thoroughly and critically, and to understand how policy makers arrived at a policy statement for introducing environmental education into the national curriculum. I found Foucault's genealogical approach (see chapter 4) framed within a post-structural perspective as an appropriate orientation for the examination of policy construction and interpretation. I wanted to explore how teachers interpreted environmental education policy and how their interpretations shaped pedagogical discourses in various subjects in primary schools. The findings of this study provide useful insights for policy implementers, coordinators, researchers and for policy makers.

1.4 The goals and research questions of the study

The research was guided by the following goals and research questions:

1.4.1 Goals of the research

- To understand the genealogy of environmental education within education policy in Botswana.
- To critically analyze governmentality associated with environmental education policy - that is how policy construction influences policy interpretations and teachers' decisions, reasoning, experiences and competencies.

1.4.2 Research questions

- Who were the players in policy developments? Why and what was the initial motivation for the policy development and implementation in Botswana?
- What are the forms of reasoning (epistemologies) that led to the incorporation of environment in education policy?
- How does policy construction influence policy interpretation?
- How does policy influence teachers' decisions, reasoning, and judgments of experiences and competencies in environmental education?

1.5 Justification and the significance of the study

The purpose of doing this research is to inform future policy construction, and better policy interpretation by identifying gaps between policy constructions and policy interpretation. The research also demonstrates how knowledge/power relations operate in environmental policy discourses in both the construction and interpretation processes. This research is, to my knowledge, the first of its kind in Botswana on environmental education.

The research contributes to new knowledge of environmental education policy construction and its interpretation. Through examining the genesis of education policy, the study identifies multiple influences on policy design and sheds light on power relations in policy processes, and on policy implementers, who are often neglected in policy formulation. The research also focuses on policy interpretation by teachers and how this influences implementation. The research further examines the relationship between policy formulation decisions and interpretation processes at implementation

level. A linking thread in this research is the influence of knowledge/power relations in environmental education policy discourses, their construction and interpretation.

The research shows that policy construction and interpretation are far more complex than perceived by many. The research breaks new ground in its attempt to consider the relationship between a genealogy of policy construction and policy interpretation within environmental education discourses in southern Africa. Policy construction involves a rich blend of skills and competencies manifested in experts, policy makers and a worldview or perception that policy is a government 'thing' (i.e. it should be initiated, constructed and handed down to practitioners). The study adds to the research literature on environmental education and policy in terms of policy development and implementation processes in a post-structuralist framework. It is of interest to environmental education policy makers/practitioners especially those who subscribe to critical theories and views that consider social practice dynamism in educational discourse.

1.6 Research methodology and methods

The research focuses on the development and interpretation of environmental education policy in Botswana at the national level. The social theory that guides the research is post-structural critical theory (Derrida, 1967 and 1972; Popkewitz, 1999; Denzin and Lincoln, 2003; Fairclough, 1995, 2003 and McGregor, 2004*)*. The first phase of the research focuses on Foucault's (1979) genealogical method. It critically analyzes epistemological reasoning and develops a social epistemology of policy development (Popkewitz, 2001b). It interprets text and policy processes guided by post-structural critical theory in the tradition of Foucault and Popkewitz. The second phase focuses on policy interpretation (Spillane, Reiser, & Reimer, 2002) applying critical discourse analysis to establish how policy implementers understand and interpret policy. This phase also explores 'governmentality' in policy power/knowledge relations (Dean, 1999; Popkewitz, Franklin & Pereyra, 2001), and establishes

- Institutional centralization,
- Emergence of new instrumental knowledge and

- Diffusion of power effects, that is exploring the interplay between normalizing strategies, strategies of resistance and why reversals occur, while interrogating where and how these occur (Darier, 1999) (see chapters 2 and 11).

The research follows a multi-layered methodological approach as it provides a systematic historical analysis of documents from national education offices, archives, reference libraries, and interviews in the data generation processes to construct a genealogy of environmental education policy. Another layer of analysis is constituted through a critical discourse analysis of the Revised National Policy on Education statements on environmental education and related curriculum policy documents to provide a deeper understanding of policy texts and their construction. Data generated from interviews with policy-makers, senior officers and teachers provide further understandings of policy genealogy and knowledge/power relations in policy construction and interpretation. Foucault's concept of governmentality provides a lens through which the interface between policy development and interpretation in environmental education policy are explored (see chapter 11).

1.7 Limitations of the study

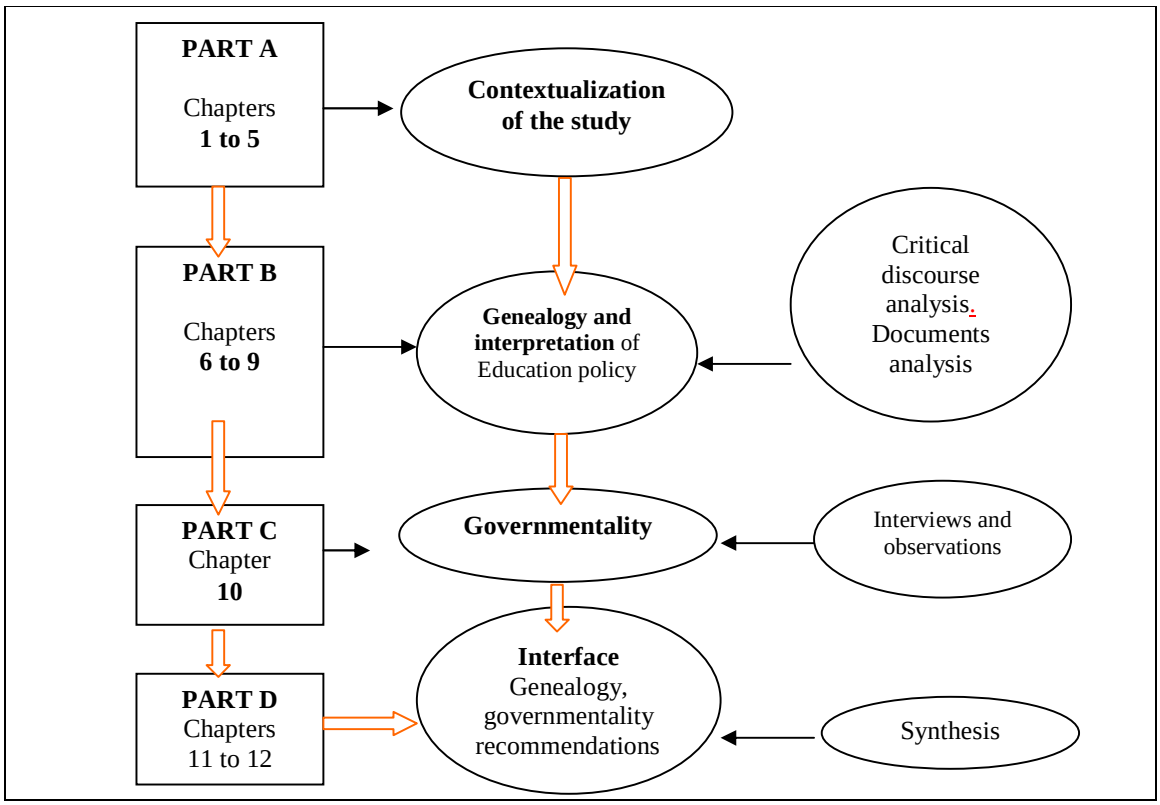
The study does not claim to be a blue-print or attempt to flag any theory as the best in the conceptualisation of policy construction and interpretation. It attempts to provide insights into a rich complexity of policy construction and implementation. It does not encourage any generalization or extrapolation from its analysis results.

1.8 Structure of the study

The study is organized into four phases (figure 1.1). **Part A** covers the introduction and contextualization of the study, and includes chapters 1, 2, 3, 4 and 5. It introduces the research questions and goals, broader historical context of environmental education policy, theoretical framework (insights into education policy process, genealogical and governmentality as key concepts for education policy) and data generation techniques. **Part B** extends genealogies of education policy in Botswana and includes chapters 6, 7, 8, and 9. It also focuses on policy interpretation through critical discourse analysis and

through interviews. **Part C** explores governmentality through teachers' views, experiences and perceptions of environmental education policy in chapter 10. The last part **(part D)** is a synthesis that considers the interface of genealogy and governmentality, exploring power-knowledge in policy making and interpretation in chapter 11. It includes conclusions and recommendations for policy construction and interpretation in chapter 12.

Figure 1.1 The structure of the thesis



1.9 Thesis outline

This section provides an overview of the chapters in this research. **Chapter 1** provides an introduction to the thesis. It introduces the study and my interest in the research question, and the factors that motivated it, its goals and specific objectives, research methodology and techniques. It outlines the thesis structure and outline.

Chapter 2 provides insights into the broader context of environmental education policy discourses, highlighting major events and their globalizing ideas. It examines issues associated with environmental education and education for sustainable development discourses that have a bearing on policy-making and implementation. It attempts to justify why education has been identified as one of the tools to transform society to promote sustainability. It illuminates debates around environmental education and education for sustainable development that continue to compound policy processes globally. It also highlights difficult choices between environmental education and education for sustainable development because of the complexity, uncertainty, instability of competing perceptions, and open-ended understandings of the two concepts. The chapter also examines historical development of environmental education and policy in the context of southern Africa. It highlights efforts by governments and civil society in response to globalizing efforts by the international community and local socio-ecological crisis in the face of challenges such as increasing levels of poverty, environmental degradation and health risk. It provides a global context to the genealogies of environmental education policy discourses in Botswana.

The next chapter **(chapter 3)** conceptualises the research by drawing on literature and provides insights into the theoretical framework that informed this study. A review and analysis of policy construction models and interpretation perspectives are provided. Epistemological reasoning and underpinnings in education policy are explored. This chapter reviews literature and develops a framework for the analysis of the findings. It explains the rationale for policy construction and interpretation theory used in this study. It covers the key concepts of the study focusing on educational policy genealogy in a post-structural frame.

Chapter 4 focuses on key conceptual frameworks, i.e. genealogy and governmentality. It provides description and explanation of the concepts and their relevance and applicability to this research. It provides background to the theoretical concepts that frame discussion of the major findings in chapter 11 and the recommendations in chapter 12.

Chapter 5 describes the research method and techniques used in this post-structural research. It provides a descriptive analysis of method/s for this study and justification of using the techniques, their limitations, and ways of ensuring data quality. It describes validity and ethical issues, the research process, i.e. the data collection process, selecting study sites, respondents and justification for their selection. The chapter covers methods of data collection such as document analysis, use of semi-structured interviews, focus groups and the use of questionnaires. It also explains how data were analyzed during fieldwork, and during the post fieldwork analysis. The chapter brings the post-structural frame of the research to the fore, the design of the research process and the techniques employed in post-structural research perspectives.

Chapter 6 provides the contextual background of environmental education policy processes in Botswana guided by post-structuralist perspectives. It critically analyses the historical development of education policy in Botswana. It is focused towards the changes that led to the conceptualization of environmental education and its introduction in the Revised National Policy on Education in 1994. It examines both national and international factors that influenced education policy development with a more recent focus on environmental education in Botswana. The chapter critically interrogates events to identify the key players and their intentions and tries to isolate other silent but important players. It also brings to light the reason behind motivations for initiating the introduction of environmental education, trying to understand why players were motivated and why some players (like teachers) were unable to or did not take an active part in policy formulation.

Chapter 7 provides a critical discourse analysis of the education policy focusing on the Revised National Policy on Education statement on environmental education. It opens up an opportunity for understanding insights provided in the following next chapters.

Chapter 8 analyses environmental education in the national curriculum. It provides a deeper analysis of the selected curriculum documents to further explore understandings of education policy interpretations. It looks at how policy statements have been translated

into curriculum statements. It provides a framework for understanding teachers' interpretation of policy and curricular texts in selected subjects and associated implementation of environmental education in schools. The chapter also provides insights into understanding teachers' reflections on the environmental education policy in practice, motivation to integrate environmental education into their teaching, and training to orientate them to the new curriculum policy implementation. It provides thorough analyses of selected subjects, and explores some common teaching approaches suggested for teachers.

Chapter 9 focuses on key decision makers' viewpoints focusing on policy conception and interpretation. It examines policy conceptualizations, understanding and the intentions of policy makers. It is based on presentation of the officers' interview results. It addresses conceptual issues related to environmental education policy discourses. It also analyzes contextual issues related to the genealogy of environmental education policy and decision makers' understandings of policy processes. It examines legislative and administrative issues/structures, providing a historical reflection on factors playing a major role in policy construction. It provides further understanding of historical factors provided in chapter 6.

Chapter 10 extends policy understandings, focusing on policy interpretation from the teachers' viewpoint. It examines teachers' interpretation, experiences and understandings of environmental education and education policy. It also provides an examination of the teachers' and schools contextual profiles. This extends the contextual analysis and discusses Ministry of Education structure, and schools' contextual issues. The chapter provides an in-depth content analysis of the interviews and deals with what the participants said about policy construction or interpretation. It also explores the issues of institutionalisation, knowledge/power relations and governmentality. It explores policy interpretation, power structures/organisation review, logistics, professional problems etc. It analyse teachers' valuing of the policy, experiences, feelings and perceptions about their teaching competencies and training. Data for this chapter is drawn from school and classroom observations and focus groups interviews.

Chapter 11 focuses on power/knowledge relations in environmental education policy development discourses within a post-structural framework. It provides a reflection on environmental education policy genealogy (see Chapter 11 Part A) and governmentality (see Chapter 11 Part B) drawing on global, regional and local influences in policy construction and interpretations. It reflects on power/knowledge relations emerging from international initiatives, regional efforts and key national players in environmental education policy discourses. Part B of this chapter provides a reflection on the notion of governmentality focusing on teachers' understandings of the policy and how a power relation operates at school level. It focuses on both discursive and non-discursive practices to provide a deeper understanding of how policy influences an individual's actions and school practices in relation to environmental education. It reflects on power/knowledge relations emerging from classroom and related discourses influencing social practices. The chapter provides an abductive reflection on theoretical concepts and data.

Chapter 12 provides a reflection on the study aims, research questions, concepts and theoretical framework, research methods, and major findings. It provides concluding statements, issues, challenges, lessons and implications. Conclusions and comments are based on analysis in relation to theory, policy construction and interpretation, and implementation in schools. It also reflects on the research process and the content and provides an assessment of what the study has been able to achieve. In summary, this chapter provides the synopsis and summary of findings of the study, and its methodology are articulated offering some recommendations while reflecting upon the entire research process.

CHAPTER 2
BROADER CONTEXT OF ENVIRONMENTAL EDUCATION POLICY PROCESS

2.1 Introduction

Driving global environmental policy processes are powerful international discourses regarding environmental justice, environmental education, sustainable development, contested 'poverty-induced' environmental degradation, desertification, deforestation and non-governmental organisations' efficacy (Moseley, 2004). This chapter provides insights into the global context of environmental education policy discourses, and highlights major events and their globalizing ideas. Implications for policy-making are critically considered throughout the chapter. The issues that arose on environmental education and recent shifts in global discourse to education for sustainable development discourses have a great bearing on policymaking and implementation. In addition global events and resolutions justify grounds for environmental education policy making as Scott and Gough (2003: 22) argue that "policy making is as much a result of what happens as it is a cause. Secondly, in relation to the natural environment, policy is often made under circumstances of complexity and uncertainty according to perceptions of risk and necessity". The chapter highlights challenges faced by policy makers in the face of growing pressure for global cooperation on environment, development and social concerns. Education has been identified as one of the tools to support and transform society to promote sustainability.

Debates around environmental education and education for sustainable development discourses continue to compound policy processes globally. What is perceived to be a choice between environmental education and education for sustainable development may be further compounded by complexity, uncertainty, unstable and competing perceptions, and open-ended understandings of environmental education and education for sustainable development. The chapter also examines historical developments associated with environmental education and policy in the context of southern Africa. It highlights efforts by governments and civil society in response to globalizing efforts by the international

community (those with power associated with their institutions) and local environmental problems in the face of challenges such as increasing levels of poverty, development issues, environmental degradation and health risk. It provides a global context to the genealogy of environmental education policy in Botswana (presented in chapters 6 to 9).

Global environmental education policymaking is connected to local/national policy discourses. Knowledge and power relations forge such connections. Understanding power and knowledge dynamics is crucial to policymaking analysis. Pre-set agendas, experts with credentials reflecting international connections define contours of engagement. Technical solutions are already pre-set by technocrats, who happen to be the role players in policy development processes: "what drives environmental policy-making is scientific knowledge: scientists establish the facts about environmental realities, and policy-makers come up with policy options in the light of the facts" (Keely & Scoones 2003: 25).

Despite consultation, citizens are constructed as subjects of planning and participation is made routine and instrumental, allowing selective inclusion of particular sets of knowledge in environmental education policy-making process (Keely & Scoones 2003) (see chapter 6). In the context of neo-liberal reforms and decentralization, policies can be used in new ways as instruments of power in changing styles of environmental governance and associated governmentality.

2.2 Global context shaping environmental education policy discourses

> Humans have always been concerned about the environment and their role in it. However, this concern varies greatly amongst communities because of the wide spectrum of cultures, attitudes, values and beliefs. Thus, different human communities have treated the Earth in various ways: ranging from awe and respect to ruthless exploitation. In my opinion, our perception of the Earth as our home was the most important determining factor that influenced our concern for the environment. (Pace, 1996: 1)

The above quotation summarizes some of the concerns, causes and current environmental policy discourses dominating environmental debates about human relationships associated with development and environment interaction. The concern for the

environment grew over decades as more damage and exploitation of the natural environment became evident and more forums were created to examine human impact on the environment. It was realized that unsustainable "human activities and development were incompatible with the welfare of the environment" (Pace, 1996: 1). International gatherings such as the Nevada meeting organized by the IUCN (1970), and the Stockholm UN conference (1972) were organized to examine environmental concerns. Through international environmental politics, it has been established that environmental problems transcend national boundaries and that it is human responsibility to mobilize resources to take care of the earth's resources (UNEP, 2002). Issues of development, technology, underdevelopment and poverty have been noted as contributing to environmental degradation (*ibid*).

Global socio-ecological issues

Some of the key ***global socio-ecological issues*** that brought about environmental awareness and influenced policy processes include: inadequate supply and availability of fresh water, rapid population growth, poverty and inequality, food shortage, depletion of tropical forests, loss of biodiversity, pollution, desertification and many more. Scoffham (2000: 205) has summed up these issues as follows:

> All over the world the environment is in crisis. The issues are complex and varied. They include pollution, urbanization, acid rain, loss of wildlife, nuclear waste, the ozone hole and global warming. Whether we are well informed or not, we are all aware that something is amiss. The message is beamed to us via television documentaries and news bulletins; it appears as headlines in daily newspapers and is chronicled in detail in books and journals. The problem is how to respond.

These problems came about as a result of human impacts on the natural environment as activities were carried out to make a living or secure more resources for the future, economic growth, leisure and recreation. Human activities resulted in increased threats to the earth's resources and to the health and stability of its societies. Due to technological advancement, industrialization, improvement in health facilities for some nations, and globalization, the human impact upon the environment and its resources has become not only significant but rapid and extremely serious, justifying the need for informed decisions and education policies (UNEP, 2002). The rate, scope and approach to

development with associated environmental impact have brought about escalating risks and threats to humanity. The scale of human responses relating to responsibilities and accountability for ecological sustainability needs to increase, and education has been identified as a tool for such response (Smyth, 1999). The environmental impact of human activities on Earth has brought about increased public concern and a demand for caring about the future of the planet. The global community is increasingly displaying pro-environmental behaviors in the face of complex interrelationships among issues affecting the global environment. This global environmental awareness has been characterized by debates about what to do and how to do it for over three decades. One of the solutions seems to be centered on transforming education to address the growing socio-ecological injustice, as almost all impacts are to linked to human behaviors and social and economic practices (UNESCO, 2005). Environmental education policy is one area of possibility for transforming education to address global and local environmental issues. Global and regional historical events (see appendix 2.1) influenced environmental education policy discourses worldwide including in southern Africa.

2.2.1 Global events influencing environmental education policy discourses

The history of global environmental education policy-making processes could be traced back to the 1972 Stockholm Conference. The purpose of the conference was to create a playing field for both the rich and poor world to act collectively to address the socio-ecological crisis. The Stockholm Conference did not only put the issue of environmental education policy on the global agenda, but shaped international opinion and resolved to enhance cooperation through the formation of the United Nations Environmental Programme (UNEP) which together with UNESCO (UN Education, Scientific and Cultural Organization) founded the UNESCO-UNEP International Environmental Education Programme (IEEP) launched in January 1975. Since its inception the IEEP has sustained its publication project, *Connect*, an international newsletter promoting discussion and the elaboration of policies and strategies for the development of environmental education at local, national, regional and global level (UNESCO, 1977). However, despite the fact that the Stockholm conference came up with outstanding declarations, events were limited particularly in Africa and other parts of developing

world. Most of the events and gatherings were in Europe and America. Africa, however hosted a number of meetings dedicated to environmental concerns and education in 1974 in Kenya and Egypt to promote an understanding and active involvement in environmental education processes (Pace, 1996).

Environmental education policy statements emerged from both the 1972 Stockholm Conference and the 1975 Belgrade Environmental Education international workshop. The Belgrade workshop which came as a follow-up to the Stockholm Conference formulated the Belgrade Charter (1975). This was a milestone international event that acknowledged global collective efforts to combat socio-ecological injustice and reiterated environmental concerns associated with rapid development and its negative effects on the natural environment. The Charter framed environmental education aims, objectives and guiding principles that continue to be points of reference today in environmental education policy discourses. It has been observed that

> The Charter rejected the fragmentary approach to environmental problem solving and advocates a 'new global ethic' necessitating a change in priorities and behaviour of individual citizens. This change in behaviour and value systems can only be achieved successfully through environmental education addressing, through formal and informal channels, all the different sectors of the population. (Pace, 1996: 6).

The Belgrade Charter recommendations symbolized another phase in the development of environmental education and influenced global environmental education policy processes. Instead of leaving the recommendations to the conference delegates to implement, plans were put in place to make regional follow-ups after the workshop. As a result five regional meetings were held following the Belgrade workshop. Four meetings were held in 1976 in Congo (Africa), Thailand (Asia and Oceania), Kuwait (Arab states) and Finland (Europe and North America) (Pace, 1996). The aim of the regional meetings was to orient "decision-makers, curriculum planners and experienced educators towards environmental concepts and methodologies" (Pace, 1996: 9). The regional meetings prepared delegates for the Tbilisi Conference that was held in 1977. The target audience for the Tbilisi Conference was policy-makers. The Conference accepted and elaborated on the goals, objectives and principles of environmental education outlined in the

Belgrade Charter. The delegates recommended formal and informal environmental education across the curriculum and in a context of lifelong learning. The Tbilisi Conference strengthened and intensified the call for the recognition of environmental education. Its shortfall was the endorsement of the emphasis on quality of life rather than environmental quality. It gave the definition of environmental education an anthropocentric focus (i.e. human-focus) as the foundation for global collaborative efforts and programmes.

Following the Tbilisi Conference the work of IEEP intensified its activities through regional initiatives integrating environmental education into UN activities. There was emphasis on information and experience exchange, incorporation of pre- and in-service training of education personnel, and the promotion of research. Regional and sub-regional workshops were held targeting teacher educators, curriculum developers, supervisors, educational planners and administrators (Pace, 1996). The post Tbilisi activities generated by the United Nations filtered down to countries and non-governmental organization initiated activities. However, the changes set up by the Tbilisi recommendations were beyond some countries' capabilities to implement immediately. Political, economic and social structures were not ready to accept the challenge. Policies were not in place in many countries to legitimize environmental education. To a large extent the majority of the people including some of the leaders and educators needed to be mobilized to realize the value of environmental education.

The IEEP promoted global environmental education processes amongst UN member states through exchange of information and experience, research and experimentation, training of personnel in environmental education, development of educational materials and publications, and regional and international cooperation. These contributed to global "awareness of environmental needs, and policy initiatives leading to the incorporation of environmental education into the curriculum, teacher training workshops, production and distribution of manuals, guidebooks, modules, sourcebooks, audio-visual and other materials" (Ponniah, 1996: 31). The global call to address socio-ecological injustice was strengthened by publication of the World Conservation Strategy (1980), by the UNESCO/UNEP and IUCN in cooperation with the Food and Agricultural Organisation

(FAO). The Strategy was aimed at government policy-makers, conservationists, and developers and sought to advance sustainable development. It introduced the concept of sustainable development into environmental discourses, aspects of training, research, participation, and education. These ideas on how to address environmental problems challenged countries to develop local strategies to promote conservation of natural resources. A number of countries worldwide, including Botswana, gradually responded to this and started to develop National Conservation Strategies (see chapter 6).

2.2.2 Sustainable development discourses

Global environmental education policy discourse was further promoted by publication of a World Commission on Environment and Development (WCED) document, known as the Brundtland report (*Our Common Future*) in 1987. The Commission reviewed the critical conditions of our planet and concluded that,

> … economic growth cannot be arrested, but it can be approached differently. The report urges governments to make environmental concerns central issues in their decision-making processes to ensure that meeting the needs of the present citizens does not compromise the ability of future generations to meet their own needs, i.e. sustainable development (Pace, 1996: 14 - 15).

The report "urges that environmental policy should become a more central element of social policy and establishes a very political agenda" (Huckle, 1990: 29). It describes sustainable development as development that meets the needs of the present without compromising the ability of the future generations to meet their own needs (WCED, 1987). The report's reference to future generations opens up an opportunity for environmental education policy discourses and gives educators a remarkable advantage as they have the immediate future generations in their hands. Despite this illuminating description, the report received critique from some quarters for perpetuating the agenda of the global elites to tackle the global environmental crisis. As Huckle (1990: 30) puts it, the Brundtland report was regarded as being the latest in a series of initiatives where

> … those with power and their institutions seek to turn pressure for change to their own advantage. Like previous initiatives, their latest form of economic, political and cultural management (the greening of capitalism) fails to analyze causes, uses

> vague code words to rally support, seeks solutions that do least damage to the existing order, and identifies the executors of solutions with the existing power structure.

Huckle (1990) further argues that the Brundtland report:

> … seeks to direct attention away from its own role in causing environmental problems by attributing blame to such factors as poverty, population growth, or underdevelopment. It uses words 'common security' to enlist support but fails to acknowledge that increasing the security of the poor generally entails undermining the security of the rich. It uses global green capitalism to shore up existing industrial and financial systems; expecting greener growth to 'trickle down' to the poor in undisclosed ways. Finally, it seeks a four-way alliance between private and public sectors, scientists and non-governmental organizations, to carry out its program. NGO's are the new element in this alliance; offering a new source of legitimation and enabling claims that community or grassroots movements have been given a voice. (Huckle, 1990: 30)

The sustainable development debate is taken further by the Brundtland report bringing out some challenges to human interest and survival. Some of the causes of the global socio-ecological crisis are attributed to clearing and burning of the forests, extraction and burning of fossil fuels, depletion of the ozone, effects of industrialization and agricultural growth. The primary causes of all these problems are ascribed to the way of life of industrialized and developed nations which have the technology and the know-how to reverse poverty, starvation and environmental degradation but who are doing very little. This, according to the Brundtland report is one of the obstacles to sustainable development. Slade (1990: 81) concludes, "… by far the greatest portion of environmentally damaging pollution and excessive consumption is by, or on behalf of industrialized developed countries". Slade (1990: 81) cited The World Commission on Environment and Development (WCED, 1987) report stating that although only 25% of the world's population lives in industrialized countries, it uses 80% of the world's energy consumption, 85% of the total paper consumption, 80% of steel, about 40% of food production and produces 90% of the world's hazardous wastes (i*bid*).

Slade (1990: 81) argued that,

> We charitably send aid to countries whose economies we hold to ransom with spiraling debts to us, which they simply can't pay. We force them to tear down

> their forests, over-fish their water and to build and run polluting industries that we will no longer tolerate in our own countries. They export to us their much needed food, mineral resources and the products of their manufacturing industries. We buy them for a pittance and they can't afford not to sell them to us.

A further challenge to sustainable development is seen from the larger, wealthier countries and corporations that will not readily relinquish their control over global resources.

> Furthermore, as demands on depleting resources increase, their wealth and power will help them to survive longer. Smaller poorer countries, like their counterparts in the business world will find themselves stuck even harder between a rock and a hard place. In most places this will not be the result of mismanagement or efficiency. They simply have less power over available resources. These inequalities are simply not in our common interest. In fact, they are an obstacle to global action which is in our common interest (Slade, 1990: 82).

From this point of view, the challenge to the global community to act in the common interest, as called upon by international resolutions including the WCED, is to design education programmes backed by political power in the form of education policy. Education for sustainable development (or education for the environment) focuses on the social use of nature and issues of environment and development at all scales. This focus is spearheaded by inter-governmental and UN agencies, academic and research institutions, NGOs both local and international. Progress is variable in both scale and scope from one place to another (Scott & Gough, 2003). Governments seem too slow in changing and in adopting policies that promote sustainability and education for sustainable development. Environmental education policy processes continue to compete with other socio-economic and political priorities. Other education policy areas and expanding curriculum development seem to be overshadowing the environmental education policy discourses giving rise to tensions which are getting in the way of progress (Smyth, 1999) in the implementation of the Brundtland report recommendations.

The UN General Assembly accepted the Brundtland report in 1989 (resolution 44/228) (Sandbrook, 1992). Since then, sustainable development has been considered a central orientation for considering human environment relations in the UN, governments, private institutions, NGOs and entrepreneurs. The concept of sustainable development can be

viewed as an ideal condition as it is interpreted differently depending on context. It has generated debates among experts and intellectuals. Pace (1996) and Sandbrook (1992) agree that for the rich countries, sustainable development may be about adopting new environmental friendly policies like recycling, alternative energy sources, conservation and rehabilitation of damaged landscapes. On the other hand, sustainable development for the poor countries involves policy issues of social justice, the generation of wealth and its fair redistribution (Sandbrook, 1992). In this framework environmental education is once again "acknowledged as a critical tool to achieve sustainable development" (Pace 1996: 15).

Further impetus to environmental education policy discourses was the Moscow International Congress on Environmental Education and Training of 1987 (UNESCO, 1990), which also adopted sustainable development as its theme. The outcome of the congress was the International Strategy for Action in the Field of Environmental Education and Training for the 1990s. The international strategy was concerned with the search for and implementation of effective models of environmental education, training and information (UNESCO, 1990). The Strategy formed part of the recommendations at the 1992 United Nations Conference on Environment and Development (UNCED) known as the 'Rio Earth Summit' (Quarrie, 1992). The Rio Earth Summit was another milestone international event to address global socio-ecological crisis. The Earth Summit called upon governments to direct strategies for integrating environment and development into education at all levels "so as to set up a world-wide programme to develop environmental and developmental literacy by the year 2000 as the learning requirement for an environmentally competent earth citizenry" (Pace, 1996: 18).

The Summit re-affirmed commitment to joint efforts in combating the abuse of the planet's resources. It recognized the role of individual citizens in the struggle to find a lasting solution to balance the quality of life and that of the natural environment. It also called for the facilitation of public awareness and information dissemination by the states. Of interest to environmental education was Chapter 36 of the Earth Summit: Agenda 21. The chapter is on "*Promoting education, public awareness and training*" as part of

Agenda 21. The main thrusts of chapter 36 are re-orienting education towards sustainable development, increasing public awareness and promoting training (Quarrie, 1992).

Chapter 36 endorsed the recommendations arising from the *World Conference on Education for All* to strive to ensure universal access to basic education, achieve primary education for the majority of boys and girls, and to reduce the rate of adult literacy (Lotz-Sisitka, 2004; Quarrie, 1992). Of more and direct significance to environmental discourses are,

- To achieve environmental and development awareness in all sectors of society on a world-wide scale as soon as possible
- To strive to achieve the accessibility of environmental and development education, linked to social education, from primary school age through adulthood to all groups of people;
- To promote integration of environmental and development concepts, including demography, in all educational programmes, in particular the analysis of causes of major environment and development issues in a local context, drawing on the best available scientific evidence and other appropriate sources of knowledge, and giving special emphasis to the further training of decision makers at all levels. (Quarrie, 1992: 221).

It was left to countries to develop their own priorities and schedules to achieve these recommendations. Global environmental education policy foundations were further laid by encouraging countries to integrate environment and development as a crosscutting issue into education in cooperation with all sectors. They were further encouraged to set out policies, review curriculum and set up multi-sectoral environmental education coordinating bodies. The recommendations from Chapter 36 also covered pre-service and in-service training programmes for all teachers, administrators, and educational planners in all sectors including cooperation with NGOs. Environmental education policy processes were further legitimized by encouraging countries to promote proven educational methods and the development of innovative methods for educational settings (Quarrie, 1992). Although Chapter 36 was not detailed, it set the agenda for epistemological and pedagogical practices in educational settings. The educational component of Agenda 21 was not only confined to Chapter 36, “but permeated the thirty nine chapters of UNCED’s programme for action, falling mainly under the notion of

'capacity building' but also under 'human resources development' and similar subsections" (Lotz-Sisitka, 2004: 15).

However, this Chapter did not go without criticism from those who have a passion for the environment. Pace (1996), felt that the Summit focused more on political issues overlooking the question of global environmental education discourses. There was too much attention given to the rift between the rich and poor countries. The rich countries were concerned with environmental issues; "the poor countries insisted that development should form an important part of the discussion on the environment" (Pace, 1996: 19). Scott and Gough (2003) argue that

> The very poor tend to care greatly about the local natural environment because it is often directly implicated in their survival. The relatively rich tend to care too, because they are secure enough in the medium to perceive and to react to long-term threats, inconveniences or opportunities for outdoor recreation. Between these extremes, daily survival is separated from the immediate environmental context and environmental resources are likely to be seen as a means of self-advancement. … For the very poor the natural environment is essential for the satisfaction of the survival needs. For the rich it becomes a means to feelings of self-expression and accomplishment (Scott & Gough, 2003: 21).

During the Summit a parallel session was organized aimed at promoting environmental education. The session discussed the development and the status of environmental education, exchanged views, and identified problems of implementation to motivate further actions at an international level.

Focusing sustainable development discourse on the right of 'future generations' remain "problematic as a guide for the use of scarce resources in situations where the present generation of young people are hungry and or participation in civil society is constrained"(Scott et al., 2003: 20). It is equally problematic where sustainable development may involve present losses to future generations in some settings. For instance, the rich may still not consider themselves not very rich and "may not see why they should bear the cost of caring for rather vaguely defined 'future generations' (Scott et al., 2003). Another policy challenge came about after the World Summit on Sustainable Development 2002, which put more emphasis on human related over non-

human related issues. The Summit emphasized social issues of poverty reduction, bringing clean water and adequate sanitation. Some members of society criticized it for overshadowing non-human issues such as loss of biodiversity, climate and pollution with human issues. Others critique it more radically (Jickling & Wals, 2003; Lotz-Sisitka, 2004). Different perspectives that framed environmental education policy discourses are provided in section 2.3.

2.3 Perspectives on environmental education

Throughout the evolution of environmental education attempts were made to define it. The debate still continues shaping environmental education policy and is complicated further by the introduction of education for sustainable development. In Botswana the two discourses are running parallel (see chapter 8). Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (UNESCO, 1978). A number of authors and practitioners have tried to define environmental education at local and international gatherings. An earlier and widely accepted definition was provided by the International Union of Conservation for Nature and Natural Resources (IUCN) in 1970.

> Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man[sic], his[sic] culture and his[sic][1] biophysical surroundings. Environmental education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality (UNESCO/UNEP (IEEP), 1985: 7)

Although this definition is now over thirty years old it still forms the basis for new understandings of what environmental education is perceived to be. A critical review of the above definition by Irwin and Lotz-Sisitka (2005: 37) reveals that the statement "reflects the rational, linear, developmental view of education characteristic of major scientific institutions" which was influenced by the thinking by some educators that environmental education was science based. This view is still held by some educators

[1] The use of 'man' and 'his' indicates the gender bias of the definition, which has since been challenged.

(see chapters 9 and 10). Meadows (1989) says environmental education is the preparation of people for their lives as members of the biosphere. It is learning to understand, appreciate, work with, and sustain environmental systems in their totality. These early definitions acknowledge the appreciation or improved relationship between the environment and human society as well as practice and decision-making concerning environmental quality.

Another attempt was made by Tilbury (1995) drawing on UNESCO (1977) saying environmental education

> …constitutes a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of the skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard to the ethical values. (Tilbury, 1995: 9)

This definition brings in other important elements such as lifelong education and ethical values. It proposes that those engaged in environmental awareness should appreciate education as a lifelong process and action should be expected after an understanding that will reflect change of attitudes. The aspect of ethical values is very important in educating people about their relationship to the environment to avoid socio-ecological crisis (see Appendix 2.2 on human-environment relationship). The Tbilisi Conference (1977) statement emphasized the element of learners' participation in developing ethics. This introduced a learner-centered pedagogical approach to environmental education (see chapters 8 and 10). Environmental education should move beyond biophysical considerations, awareness raising and behaviour modification to involve individuals in problem solving, encourage initiative and sense of responsibility to build a better future. A critical review of environmental education definitions by Irwin and Lotz-Sisitka (2005) included a stronger focus on social critique and social change, which was, introduced earlier by Huckle (1991). A social critical orientation to environmental education "encourages learners to probe the social systems associated with environmental problems, and thus to take a deeper, more critical view of human-environment relationships" (Irwin & Lotz-Sisitka, 2005: 35). Environmental education definitions

emerging from global environmental debates shaped environmental education policy discourses.

Environmental education has been criticized for been apolitical, informed by reductionist empirical science and for focusing on natural resources use or management as key to its goal. It "has been challenged to consider the environment in its totality, natural and built, technological and social, and view itself as a continuous life-long process that takes place both inside and outside the classroom" (Clover, 1996: 102). Da Silva (1996: 113 - 114), observed that "personally, locally, even nationally, it can serve as a 'starting point' in achieving environmental sustainability". UNESCO (1978) suggests that environmental education enhances critical thinking, problem-solving, and effective decision-making skills, and teaches individuals to weigh various sides of an environmental issue to make informed and responsible decisions. Environmental education does not advocate a particular viewpoint or course of action. The early UNESCO (1978) description of environmental education components was centred on awareness creation, participation/action-taking and skill-based activities intended create knowledge to change attitudes, values and behaviour. These have since evolved to socially critical and participatory methods promoting critical dialogue and reflection. Appendix 2.2 (later adapted from Ekins and modified by O'Donoghue, 1993, 2003) illustrated how environmental discourses continue shaping environmental education definition. The definition encompasses the inter-relationship of environmental issues extending to economic, social and political aspects in addition to the traditional biophysical foci.

The components of environmental education had since broadened to encompass education for sustainable development and sustainability. It has moved more to education *for* the environment representing re-constructionist, postmodernist and transformative educational paradigms (Sterling, 1996). It is more radical, socially critical, arousing a wealth of thinking to counter and offer alternatives to the dominant social paradigms (Sterling, 1996). Environmental education and education for sustainable development are deepening environmentalism in the face of an emerging global consensus on the need for a strategic response to promote sustainability (see IUCN 2002). The historical transformation of education for the environment is seen from nature study that had

developed an affinity with the rest of nature and an understanding of ecology to a radical social tradition that addresses such concepts as equity and social change (Sterling, 1996). Nature study was associated with education *about* and *in* the environment that are more interpretive and positivistic representing environmental education or education for sustainable development and lacking critical reflection and unproblematic view of sustainable development. The challenge to the global community is to make education an instrument of public policy in the face of environmental politics "dominated by issues of national sovereignty and conflicts over who is to pay for the necessary policy changes" (Huckle & Sterling, 1996: 5). To enhance environmental education and education for sustainable development, Sterling (1996: 5) suggests that an environmental education policy should be "shaped, negotiated, owned and enacted at local level as far as possible, often in relation to personal, social and economic needs and concerns through the medium of learning and educational processes".

Adding impetus to the genealogy of environmental education policy process was the "UN-sponsored Millennium Summit in September 2000, where 147 world leaders agreed to a global compact known as the Millennium Development Goals" (Lotz-Sisitka 2004: 28). Millennium Development Goal 7 committed world leaders to ensuring environmental sustainability. However, the UN (2005) Millennium Development Goals report revealed that,

> Most of the countries have committed themselves to the principles of sustainable development and to incorporating them into their national policies and strategies. They have also agreed to the implementation of relevant international accords. But good intentions have not resulted in sufficient progress to reverse the loss of our environmental resources. (United Nations, 2005: 30)

The report implies that after 5 years, the principles of sustainable development had not been sufficiently integrated into national policies and strategies. The role of education policy in reversing resource loss could be one of the strategies through which sufficient progress could be realized. Reversing resource loss could assume a contextual approach to environmental education and country-based education programmes and policies. An audit review by Obol, Allen and Springhall Bach (2003) indicated that in the context of

southern Africa there had been some progress associated with environmental education policy. By 2003 numerous policies had been developed although not all of them were effectively implemented (See section 2.5).

2.4 Perspectives on education for sustainable development

Like environmental education, education for sustainable development has no fixed meaning; its meaning is being shaped by different political orientations, values, philosophy and context underpinned by different kinds of knowledge. As much as sustainable development and education for sustainable development education was a welcome idea from the late 1980, just like environmental education, it is facing some scrutiny. Sustainable development implies 'growth' to some people and 'accepting the need to seek harmony with other people and with nature' to others (Gayford, 1996). While less developed countries are associated with poverty as a result of environmental degradation, developed countries view environmental conservation on the basis of "requirement for areas that can be used for leisure and relaxation. In poor countries the need to use environmental resources on short-term basis in order to survive predominates"(Gayford, 1996: 7). These contexts have different implications. For instance, an interpretation of the concept of sustainable development by Hattingh (2002: 8) is that the context of the concept to the poor nations was that our responses to environmental concerns should never be at the cost of the legitimate aspirations of the poorer nations of the world to overcome poverty and to reach a standard of living that is comparable to that of the richer nations.

This skepticism is explained by Logan and Moseley (2004). Their analogy of the sustainable development debate reveals that volumes of literature authored primarily by 'Northern' environmentalists, expresses alarm over 'Southern' problems like biodiversity loss, deforestation, and human population growth.

> By contrast, the focus of Southern scholarship and policy prescriptions, especially from Sub-Saharan Africa seems to be more directed at issues relating to poverty-alleviation and livelihood security (see, for example, Sen, 1981; Mamdani, 1990; Guha, 1997; Logan, 2002). Sub-Saharan Africa experts have tended to view Northern preoccupation with environmental matters with skepticism. Charging

> that the global environmental movement is part of a post-colonial agenda, which is directed at circumscribing resource autonomy, constricting development alternatives, and undermining national sovereignty on the sub-continent (see Moore, 1996; Brockington and Homewood, 1996; Neumann, 1998; Schroeder, 1999; Basset and Zueli, 2000; Igoe, 2000). (Logan & Moseley, 2004: 1)

The debate may have an influence on education policy processes and pedagogical discourses. The debate is not only constituted along geopolitical lines (south-north dichotomy) but also on ideological lines posturing different solutions to address the socio-ecological crisis. Sub-Saharan Africa (SSA) appeals for equity in resources distribution to tackle poverty, reduction or elimination of debts and relaxation of international conservation treaties such as the Convention on International Trade in Endangered Species (CITIES), and the socio-economic burdens associated with the World Bank policies (Logan & Moseley, 2004). However, it also implies power relations as the poor regions of the world lack financial power, which the 'North' has.

Logan and Moseley (2004: 2) further posit that, the northern position

> … is founded on three interlinked fundamental propositions: that population growth is at the root of most environmental problems, that poverty-alleviation is impossible without population control; and that poverty-alleviation is not an end but the means to the greater end of environmental conservation. While the SSA position offers only rhetoric, the Northern position is often legitimized by scientific models, which find their philosophical heredity in "Malthusian logic" to explain environmental degradation, links demographic change to economic change, economic change to environmental conservation.

Although the sub-Saharan Africa position implies rapid economic development, it has far reaching consequences particularly where a weak interpretation of sustainable development involves undermining the imperatives of nature conservation and environmental protection (Hattingh, 2002). Sustainable development is heralded on the following fronts

> i) at the conceptual level, it is used to prescribe and legitimize a particular ideological view of the conservation-development linkage; ii) at the policy level, it is used to frame an alliance among the activities of the global environmental movement, the global democracy movement, and the global free trade (neo-liberal) movement; and iii) at the level of praxis, it is used to identify and allocate funds for a particular type of development program labeled community-based,

> grass roots, and local, to use a few descriptive typologies. In all of these ways sustainable development touches on the livelihoods of common individuals and households on the subcontinent. (Logan et al., 2004: 2)

A closely related concept to sustainable development that is gaining currency and influencing policy discourses is *environmental security (ES)*, i.e. a framework for improving resource availability at several geographic scales (local, national, regional) and which is aimed at establishing legal and institutional frameworks for resource adjudication and conflict prevention and resolution at several political levels (Moseley, 2004). It has a certain amount in common with Community Based Natural Resources Management, or decentralization, where local institutions mange the local resources (*ibid*). Logan (2004) suggests that environmental security might be one solution to the resource-based tensions that exist between the global, national and local levels. Environmental security like sustainable livelihoods is thought of as an evaluative instrument and an approach to avoid resource conflict (Moseley, 2004). Environmental security is leaning towards Malthusian analyses, linking population growth and resource scarcity, to conflict rather than to attributing resource scarcity to power distribution (*ibid*). The implementation of environmental security or sustainable development oriented policies would necessitate an educational component to effectively support efforts to address socio-ecological issues and resource use in Africa and worldwide. However, Barraza, Duque-Aristizal, and Robolledo (2003: 351) argue that education has not worked towards sustainable development, instead it might be working towards un-sustainability. It produces the middle and high-class societal levels that are known for high consumption with the power to influence decisions, including advocacy for environmental care. Despite the fact that education produce the affluent, environmental issues continue unabated, poverty continues to increase, while the educated lead local, regional and international policy decision-making bodies.

New ideas such as the sustainable development concept could be attributed to what Huckle (1990: 28) refers to as “a growing body of critical theory which unites the natural and social sciences and enables radical environmentalists to continually revise their ideas and strategies”. Sustainable development provides valuable insights into environmental educators’ intellectual tradition.

Historically there has been a continued debate on environmental education, outdoor education, conservation education and nature study. Proponents of the latter three have expressed a concern that environmental education was going to replace them (McKeown & Hopkins, 2003). The same debates continue even during the emergence of education for sustainable development. McKeown and Hopkins (2003) argue that environmental education was influenced by outdoor education, conservation education and nature study and sees similar pattern today between environmental education and education for sustainable development. Education for sustainable development is seen as one of the areas of growth of environmental education as it has had tremendous influence on environmental education policy discourse. Policy implications are that education has to be transformed. Huckle and Sterling (1996) argue that education must itself be transformative if it is to be transforming and suggests that education for sustainability holds the promise of a new transformative paradigm for education. McKeown and Hopkins (2003) do not see any problem with the concurrent existence of environmental education and education for sustainable development. Education for sustainable development is not going to replace environmental education.

> Environmental education and education for sustainable development are discrete, yet complementary. It is important that environmental education and education for sustainable development maintain separate agendas, priorities and programmatic development. The two will influence one another, and each will benefit from the independent growth of the other. (McKeown & Hopkins, 2003: 127)

This school of thinking is shared by UNESCO (2002 & 2005), Scott and Gough (2004) and Hopkins, Damlamian and Lopez Ospina (1996) who agree that the roots of education for sustainable development are firmly planted in environmental education and it is an important ally that has steadily striven towards goals and outcomes similar and comparable to those inherent in the concept of sustainability. Environmental education is seen as an investment to build upon and learn from its genealogy to formulate future action in education for sustainability. However, Jickling (1992: 7) is uncomfortable with educating for sustainable development and argues that, “it seems equally improbable that we can accept any educational prescription in the absence of an adequate

conceptualization of sustainable development". Jickling finds sustainable development instrumental, unclear and inconsistently defined. He illustrated his view by saying

> Clearly, I would not want my children to be 'educated for sustainable development'. The very idea is contrary to the spirit of education. I would rather have my children educated than conditioned to believe that sustainable development constitutes a constellation of correct environmental views or that hidden beneath its current obscurity lies an environmental panacea. (Jickling, 1992: 7)

More impetus to global environmental education policy discourses was added in 1996 by a report to the UN Commission on Sustainable Development (Hopkins, Damlamian, & Lopez-Ospina, 1996) based on chapter 36 of Agenda 21 that included among other things the following in the new priorities;

- Integrate implementation of recommendations concerning education, public awareness and training in the action plans of the major UN conventions and conferences
- Advice on how education and training can be integrated into national policies. (Scott & Gough 2003: 13)

Policy development faced some tensions and paradoxes as decision makers had to respond to international demands to transform education systems in the face of 'competing' environmental education and education for sustainable development discourses particularly following 1992 Earth Summit. It became apparent that re-orientation of education to education for sustainable development was imminent but continuity of environmental education find niches in the preservation of the past and what is perceived important in social practices (Scott & Gough, 2003). While it became necessary to change and engage with the future, it became apparent that contextual circumstances such as poverty posed some challenges to a global call for a response to protect the environment while engaging with future development. Reorientation of environmental education to education for sustainable development does not only privilege those who are advantaged in power relations. Education for sustainable development's mode of engaging the local communities and participatory approach means disempowering some people who may resist losing power. However, Scott and Gough (2003: 19) finds problems with empowered citizens and postulate that the

important reason why they "do not always do as policy makers would wish is that interests of society-at-large (with which the policy makers tend quite properly to concern themselves) and the interests of particular groups or individuals may not coincide". Some empowered people give priority to immediate concern even where they appreciate future benefits such as meeting curriculum requirements.

2.4.1 United Nations Decade of Education for Sustainable Development

United Nations Decade of Education for Sustainable Development (UNDESD) (2005-2014) came at a time when different views are still part of the debate about what it is. The overall goal of the UNDESD is to integrate the principles, values and practices of sustainable development into all aspects of education and learning. The UN resolution on the Decade encourages governments to consider inclusion of measures to implement the Decade in their respective educational systems and strategies and, where appropriate, into national development plans (UNESCO, 2005). It also invited government to promote public awareness of and wider participation in the Decade, *inter alia*, through cooperation with and initiatives engaging civil society and other relevant stakeholders especially at the beginning of the Decade (*ibid*).

UNDESD's main thrusts are improving access to quality basic education; re-orientating existing education programmes; developing public understanding and awareness; and providing training (UNESCO, 2002: 2). The Decade goals are related to Millennium Development Goals (MDGs) and Education for All (EFA). Millennium Development Goals on the provision of primary education and gender equality in education overlap with Education for All agenda (*ibid*). The Decade of Education for Sustainable Development also addresses pedagogical processes, the validation of knowledge and the functioning of education institutions. It also promotes a set of underlying values, relational processes and behavioural outcomes, which should characterize learning in a range of contexts (*ibid*). The dilemma that may arise as a result of the emerging education for sustainable development as a dominant narrative may be the choice of emphasis on either environmental education or education for sustainable development resulting in slow pace in policy process to address sustainability. A variety of contextual

understanding of environmental education and education for sustainable development are already shaping education policy discourses and influencing pedagogic practice in schools (see chapters 8 and 10). In the next section I narrow environmental narratives to southern African context in preparation for a focused genealogy of environmental education policy in Botswana in chapter 6.

2.5 Evolution of environmental education in the southern African context

The development of environmental education and environmental education policies in southern Africa has a long history dating back to prior to the globalizing influences of international events (see appendix 2.1) and recommendations. It is characterized by traditional education focusing on understanding of

> … local ecological resources, which enabled people living off the land to develop knowledge and skills to adapt to, manipulate and use the land, flora and fauna. Conservation was often realized in a pattern of shared beliefs, cultural taboos, folklore and myths which frequently embodied a common interest amongst communities to conserve their natural resources" (Irwin, 2003: 138).

Irwin (2003) further posits that environmental education evolved from conservation education which was more informal in conservation centres used by schools and communities to a more conceptualized formal process shaped by "acute political social and economic factors as well as ecological concerns" (Irwin, 2003: 138). Conservation education was eventually re-oriented to include political, social, economic perspectives and the built environment. The growing environmental concerns and education policy processes had an influence on African and southern Africa environmental education processes and the spread of environmental discourses aroused interest in governments and organizations. The increasing media attention given to environment and development issues helped to bring environmental education and currently education for sustainable development to the attention of authorities. Attention is increasingly shifting and broadening environmental education discourse to education for sustainable development to encompass a broader audience including the vulnerable, development planners, decision-makers, industry, health issues and politicians (Lotz-Sisitka, 2004).

Environmental education is reflected in some major policy documents, constitutions and integrated into most SADC countries' education systems.

International events such as the Stockholm conference (1972) and the Rio Earth Summit (1992) have influenced policy development and implementation processes in Africa and southern Africa (see section 2.2 and appendix 2.1). Many environmental education and curriculum policy responses were influenced by UNEP-UNESCO (IEEP) (1977) aims, objectives and principles as laid down at the end of the Tbilisi conference in 1977. The influence of global environmental education policy initiatives in southern Africa may have been boosted by the recommendations of Tbilisi conference. Calls for measures and cooperation to arrest the increasing environmental degradation influenced national policy development and implementation. Policy processes in southern Africa were varied according to contextual enabling environments (see Obol, Allen and Springhall Bach, 2003). The power of local practices, knowledge and experiences determined the rate of policy response by individual nation states, organizations, groups and individuals. Among the early respondents to the global call boosted by IEEP were NGOs such as the Environmental Education Association of Southern Africa (EEASA) established 25 years ago (in 1982).

The Environmental Education Association of Southern Africa as a regional organization has organized and hosted workshops and conferences and published a journal and bulletin that encouraged debates on environmental education practices. The Association is a simple but dynamic regional organization that continues to accommodate and respond to global, regional and national issues and debates on environment, education and development. Policy developments and implementation issues has formed part of the annual conference and workshops deliberations. It has also taken up education for sustainable development themes into its annual gatherings. For instance, its 2002 annual conference held in Gaborone focused on *'Environmental Education for Sustainable Development'* (EEASA, 2002). The Association has functioned as a catalyst to the development and growth of environmental education in southern Africa. The organization provided a forum for debates on different and influential epistemological and philosophical assumptions and premises of individuals and groups. This provided for

rich diversity in environmental education in southern Africa (Irwin, 2003). In addition to networking through conferences, the Association contributes to environmental education policy discourse through its publications, the Southern African Journal of Environmental Education and the bulletin. In 2002, it published a special edition of the journal dedicated to policy processes in southern Africa (Rosenberg, 2005) with contents from across the region. The debates in this special journal reflected a broader spectrum of views on policy in practice issues in a multi-disciplinary way.

Other national environmental non-governmental organizations in southern Africa that pioneered environmental education included the Association of Wildlife Clubs of Botswana and the Kalahari Conservation Society in Botswana, Chongololo Clubs in Zambia, and Wildlife Society of South Africa (WESSA), (now working in partnership with SADC-REEC) and World Wildlife for Fund for Nature (South Africa). Some of these organizations directly influenced environmental education policy process in their countries. For instance the Kalahari Conservation Society and Association of Wildlife Clubs of Botswana participated in lobbying government to incorporate environmental education into the national education system (see chapter 6). As Irwin (2003: 143) observed

> Several governments are however still trying to get to grips with the issues of sustainable development. We are fortunate that there is little conflict between environmental education as currently conceptualized in southern Africa and education for sustainability as developed by UNESCO.

While environmental education policy and education for sustainable development status is still evolving in southern Africa, nation states are re-focusing their priorities to issues of HIV/AIDS and poverty. Poverty is one of the greatest concerns in southern Africa as it is linked to a number of social and environmental issues. It is linked to food insecurity, low income, lack of employment, poor health and sanitation and skewed economic and development models that increase the gap between the social classes locally and nationally (Lotz-Sisitka, 2006). Poverty is blamed for overexploitation of the available resources by the affected to sustain livelihoods. In addition poverty is exacerbated by biodiversity loss, water scarcity, high population growth, land degradation, urbanization

and climatic changes. These increase the challenges of environmental education policy development processes to address current socio-ecological issues.

Events such as the 1992 Earth Summit marked globalizing trends and stimulated the development of environmental policies throughout the region (with donor support being a major driver) (Rosenberg, 2005). Environmental policies focusing on mining, agriculture, and natural resources were enacted by SADC member states focusing more on the exploitation (development) of the resources. The impact of these activities may have been of lesser importance to the policy decision makers than the financial gains (*ibid*). One of the objectives of Article 5 of the Treaty that established the Southern African Development Community (SADC) says one of the Community's major objectives is to 'achieve sustainable utilization of natural resources and effective protection of the environment'. Article 21 commits member states to cooperate in the areas of natural resources and environment (SADC, 1993). SADC and its Environment, Land and Management Sector

> … have been instrumental in catalyzing country initiatives on environmental education policy in the region. The creation of a SADC Regional Environmental Education Programme and specifically the establishment of a regional environmental education network of representatives created an effective structure for communication on environmental education in the region. (Obol, Allen & Springall Bach, 2003: 163)

SADC-REEP has undertaken and or commissioned a number of reviews including studies on environmental education policy processes in southern African region. One of the studies was carried out by Obol, et al. (2003). The study was meant to determine the status of environmental education policy processes. It probed the "status and understanding of environmental education processes, common elements and role players, constraints and opportunities in the development and implementation of environmental education policy" (Obol, Allen, & Springhall Bach, 2003a: 22). Through a broad search and consultation in the region the study has revealed among other things:

- That each SADC member state made inroads into the development of policy for environmental education,
- That there are different understandings of the meaning and the role of policy across the region;

- That there are gaps between action and practice in policy processes in some member states (a similar finding was reported by Rosenberg, 2005) evaluation
- That policy stages could be grouped into four stages namely; policy initiation or development, institutionalization (meaning the adoption by an institution), implementation and review,
- There is evidence of donor support and partnership in the production of policy documents. (Obol, et al. 2003: 24 -5)

Moreover, it revealed that "Most SADC wide protocols, programmes, and projects are still environmental education insensitive" (Obol, Allen, & Springhall Bach, 2003b: 161). SADC protocols are policy guidelines on particular areas or issues (see Appendix 2.3).

Another SADC-REEP research initiative was undertaken to probe the relationships between environmental risk, poverty and health risk in ten case study sites across the southern African region (Lotz-Sisitka, 2006). This reviewed the way in which environmental education processes are responding to increased environmental degradation and risk and the ravages of HIV/AIDS, malaria and other health risks in southern African society (*ibid*). The study indicated a number of insights on environment, health and sustainability responses. On policy, it emerged that;

- educational interventions in most contexts lack policy synergy and integration at implementation levels; (Lotz-Sisitka, 2004; Obol et al., 2003a; Rosenberg, 2005)
- a positive approach to ESD was needed
- relevant and cultural situatedness of ESD policies was necessary.

These imply that the 'gap' between policy and practice should be given attention; policies should see learners as part of the solutions; and should reflect African culture, knowledge systems and values (Lotz-Sisitka, 2006).

Furthermore, the SADC protocols and policies audit (Obol, et al. 2003) revealed that the protocol on education and training, while focusing on awareness raising and capacity building, does not provide an opportunity for environmental education. There was no reference made to education on mining, industry and agriculture. There is no reference made to education on water pollution, prevention, reduction and control. This represents a significant policy gap in the region (Obol et al., 2003a; Rosenberg, 2005).

Environmental and sustainable development was mentioned without reference to how it could be achieved with environmental education (Janisch, 2004). Education policies are focused on structural and political framings, rather than on education framings (*ibid*).

2.5.1 Opportunities for EE policy process in southern Africa

> Environmental education processes in the SADC region are intimately intertwined with issues of development, survival, livelihoods, improved quality of education and improved quality of life and more processes as a mechanism for social as well as environmental change. (Janisch, 2004: 4)

There is a significant opportunity for environmental education in all sectors at all levels- but SADC policy does adequately include such opportunities for environmental education to promote integration of environmental concerns into development planning. There is an opportunity for environmental education to increasingly educate and develop skills for better management of resources. As indicated above, policy issues in southern Africa include poverty, HIV/AIDS, biodiversity, water, pollution and waste management. This creates a challenge – how best can environmental education contribute to resolving these issues? How best can environmental education contribute to narrowing the gap between knowledge and behaviour? "Meaningful social change does not come about through the receiving and sharing of messages alone and more engaged processes of environmental education need to be explored" (Janisch, 2004: 5). Opportunities exist at local and national levels within Africa and the southern Africa region to build capacity, enable implementation of environmental education policy and to enable changes in education policy.

2.5.2 Some efforts and achievements in EE policy processes in southern Africa

Research and document analysis has shown that some progress has been made with regard to environmental education policy processes (Lotz-Sisitka, 2006; Obol et al., 2003a; Rosenberg, 2005). Some countries such as Tanzania and Zimbabwe were supported by the SADC-REEP in their environmental education policy processes "in the form of funding for sectoral consultation, as well as the policy guidelines source book" (Rosenberg, 2005: 74). At the school level progress has been noted on school

environmental policy (SEP) processes in Botswana, Lesotho, Namibia and Zambia, also supported by SADC-REEP.

> [The] school Environmental Policy resource provides schools with a coherent framework for environmental education activities which are, in the absence of a coherent environmental education policy or curriculum, often *ad hoc*. It encourages teachers to make curriculum links and thus to increase the educational benefits of school improvement activities such as vegetable gardens or recycling; it is also experiential and action oriented, with activities for auditing resource use at the school." (Rosenberg, 2005: 74)

Support from SADC–REEP "has encouraged and motivated practitioners to engage in policy making … and has enabled sharing of materials, ideas and learning" (Rosenberg, 2005: 79). The SADC–REEP has furthermore supported networking and course development within the region contributing to regional environmental education policy discourse. Further support by the SADC–REEP came through seed funding for various locally defined policy related projects. These activities have contributed to environmental education policy discourses in the southern African region.

2.5.3 The significance of the achievements in terms of EE policies

Like in most parts of the world environmental education is undergoing some transition as it begins to emphasize sustainable development although education for sustainable development is still contested by some intellectuals such as Jickling and Wals (2003), Huckle (1991 & 1996) (as described in section 2.2.2). It is criticized for attempting to narrow environmental education as an open-ended process and for constituting 'development' as the endpoint for educational discourse. Sustainability is perceived as shallow in theory requiring further research and discussion in the context of environmental education. It appears there is a dire need for education policy development to direct and mediate between environmental education and education for sustainable development. UNESCO (2002) argues that environmental education policy development should encompass or create space for education for sustainability across sectors and stretch beyond compartmentalized sectors and provide linkages, exchange and interaction among stakeholders in education. As acknowledged by UNESCO (2002), the root of education for sustainable development is firmly planted in the environmental education

efforts and has striven towards achieving the goals and outcomes similar and comparable to those inherent in the concept of sustainability. Therefore, in incorporating sustainability in the education system, environmental education should not simply be viewed "as something of an 'historical artifact' informing … recent discourse on 'ESD'" (Lotz-Sisitka, 2004: 48), but should enable a more dynamic and reflexive discourse with contemporary validity and value.

Governments are primarily responsible for the organization and provision of lifelong education, particularly through formal provision of education opportunities for youth and adults. However, civil society is also assuming responsibility and exercising its power in the dissemination of environmental information and guidance on the options that are available. In many southern Africa countries, environmental non-governmental organizations are working in partnership with governments to achieve sustainability. This partnership to promote sustainability is indicative of change in how power patterns operate. Sharing of responsibility and accountability may go a long way in achieving the global call to engage communities in social practices including policy formulation and implementation. Of interest to this study is how these relations shape policy discourses (see chapter 6).

2.6 Power relations in global environmental education policy discourses

The purpose of this chapter is to provide a broader context to environmental education policy discourses in Botswana. It is to locate how, where and why environmental educational policy came about into the Botswana's education system in a broader global context (see Chapter 6 focusing on Botswana). Powerful organizations and institutions such as IUCN, UNESCO, WWF, etc drives the events leading to the introduction of environmental education into education systems around the world. They have formed environmental coalitions to encourage countries to address the increasing global ecological problem that is transcending national boundaries. They base their campaign on new environmental knowledge that is scientifically based and proven, expert led, and on financial and social power. They use their implicit power through the media and exercise more power through partnerships with the United Nations, international agreements and

conventions. They set agendas regarding epistemologies and pedagogical discourses and countries are subjected to reactive situations within both local and global contexts. Countries react by making environmental education policies in line with global thinking and contexts rendering the power of global environmental coalitions effective, as shown by the social movement to incorporate environmental education policy in the southern African context. This study seeks deeper insight into the 'response' processes at a country level, in Botswana.

2.7 Summary

The genealogy of global environmental and environmental education policy discourses are part of a process advocating for a new world order, which is holding governments accountable for the development of policies that contribute to and sustain forms of international environmental governance. This chapter has provided a brief contextual history of environmental education policy processes from global perspective and how these are playing out in a southern Africa context. This chapter has shown international community for environmental education has been on for close to a half century. International environmental concerns led to policy development initiatives driven by world bodies associate and working in coalition with the UN (such as UNESCO, UNEP and the IUCN. The chapter has shown how these global developments 'spiral down' to sub-regional levels.

This chapter has also indicated that, at policy level, a contemporary challenge to environmental education policy discourse is the new focus on sustainability, links to poverty, development and environment. According to Tilbury (1995), the re-conceptualized aspects of environmental education would include socially critical skills, political literacy and a programme that is relevant, holistic, and issue-based among other requirements for achieving sustainability. The chapter has indicated that this discourse has been present in southern African environmental education discourse for sometime and that regional institutions such as EEASA and SADC-REEP have been pro-actively engaging these debates. Global environmental education policy discourses are driven by new environmental knowledge on increased consumerism, widening gaps between the

south and north and between the health and the state of the environmental deterioration on a global scale. Key drivers of these global discourses are big conservationist organizations such as WWF and IUCN. These organizations "play an important role in influencing the agenda of world environmental politics" (Martinez-Alier, 2002: 197). They exercise their power through lobbying governments, the United Nations' organs, mobilizing groups, funding projects and using the power of the media (*ibid*). These big organizations are strategic in their exercise of power as they choose to work with the industrialized world and powerful organs such as UNESCO and UNEP, avoiding or minimizing chances of taking them head-on on their unsustainable environmental practice. Environmental organizations and nation-states have reacted to global environmental education policy discourses at varied contextual scales.

The next chapter builds on this chapter by providing a theoretical framework and models of policy construction and interpretation. It provides insights on how policy interpretation and how power and knowledge operates within policy discourses drawing mainly from Foucaultian perspectives.

CHAPTER 3

INSIGHTS INTO EDUCATION POLICY PROCESSES

3.1 Introduction

This chapter presents a literature review which contextualizes the research, argues a case, and identifies a niche to be occupied by the research. The chapter establishes a critical conversation with the literature to shape the argument of the research. Along with chapter 2, the chapter provides background to guide understanding of data in Chapters 6 to 10. As mentioned in Chapter 1, the research focus is development and interpretation of environmental education policy in Botswana at a national level. Social theory that guides the research is post-structural critical theory (Denzin & Lincoln, 2003; Fairclough, 1992; McGregor, 2004; Popkewitz & Fendler, 1999). This chapter focuses on theoretical frameworks for policy processes. The theoretical framework of the study allows for critical analysis of epistemological reasoning and as such enables a social epistemology of policy development (Popkewitz, 2001a). It also focuses on policy interpretation (Spillane, Reiser, & Reimer, 2002) to establish how policy implementers understand and interpret policy. Chapter 4 provides further insight into the theoretical framework informing this research.

3.2 Policy and education policy processes

This section discusses environmental education policy processes drawing on literature that focuses on general perspectives on policy formulation processes and policy practice frameworks. A policy is an official document, highly politicized to achieve both social and economic objectives strictly on the political agenda (Keeley & Scoones, 2003). Most governments ensure that they hold full control of education policy development processes and monitor implementation to avoid slippage between policy conception and practice. Theoretical orientations of policy development are most often determined by the ideological orientation of the authorities and experts involved at a specific historical time and space. Some policies follow modernist strategies, for example, top-down, bottom-up or partnership approaches. Others are influenced by post-modernist thinking and acknowledge focus on the ‘self’ and globalization of knowledge. Some education policies breed what is often referred to as ‘disarray’, ‘flounders’ and ‘schisms’ (MacDonald,

2003). These descriptions are characteristic of a field fraught with oppositional discourses associated with policy interpretations by different players with varied interests. Conflicting and competing narratives may cause disarray, floundering and schisms which could render policy a failure. When an education policy fails in practice, such failures are usually blamed on 'wrong design', resistance by teachers, or incorrect policy implementation approaches. Education policy failure may also be caused by contestation over its meaning, interpretation of its intent and expected outcome.

Policy-making and management processes are complex as they involve linkages connecting social and politico-economic factors with policy implementers involving issues of actors' understandings, interpretations and power relations. As indicated in Chapter 1 and 2, the importance of policy in guiding environmental education development cannot be overemphasized particularly in a region that is undergoing political, economic, and social transformation in a post-colonial epoch and entering into the United Nations Decade of Education for Sustainable Development. The southern African region is grappling with social and economic up-liftment of its people through regional cooperation. Local policies are being established to manage natural resources and reduce or curb degradation, pollution and extinction of species. Environmental education policies are part of the legal instruments promoted through local and regional initiatives to promote sustainability (see section 2.4). The discussion in chapter 2 indicated that processes of policy-making and their implementation management need theoretical frameworks that are not necessarily universal, as regional, sub-regional and national policy processes may differ.

3.3 Educational policy theoretical framework

The public policy-making process is a complex practice as it involves a number of stages passing through state-created agencies responsible for education and the public good. The policy-making process is multidimensional and value-laden and exists in a particular context. In pursuit of public interest, some national policies are either sufficiently or insufficiently detailed, or immured in technical details reflecting the rich and dynamic processes and sites where they take place (Fitz, Davies, & Evans, 2006). The scope and

complexity of any educational policy is determined by the policy-making model adopted, official agencies, and actors and to some extent, public interest. State-produced educational policy discourses present a complex challenge to readers. As Olssen, Codd, and O'Neil (2004: 2) put it

> … educational policy is not just a matter of understanding its educational context or reading it as the 'pronouncements' of 'the policy-makers.' It requires an understanding of the dynamics of the various elements of the social structure and their intersections in the context of history. Policy documents are discursive embodiments of the balance of these dynamics as they underlie social relations at particular points in time.

Policies contain highly politicized symbolic systems, which require unpacking. The meanings embedded in policy texts, which is the focus of this study, require decoding as they do not only constitute political, cultural, and economic expectations that need to be revealed, but educational goals and epistemologies that require implementers' understanding (see chapter 2). Central to such foci is a conception of policy as a politically, socially and historically contextualized practice or set of practices (Olssen, Codd, & O'Neill, 2004). This research explores ways of generating, understanding, conceptualizing and interpreting environmental education policy. Olssen, Codd, & O'Neil (2004: 4) note that

> … the meanings of policy texts … do not reside un-problematically in the text itself as something to be 'discovered' or rendered 'visible', but in the relationship between the text and the social structure. The meaning and significance of policy at any particular historical juncture is something that must be rendered intelligible through a process of interrogation, by ascertaining the way that discursive contexts inherent within the social and historical process manifest themselves through textual production, formation and articulation.

Policy articulation is guided by contexts inherent within the social and historical process and associated reasons for change.

3.4 Policy and reason for change

Policy is viewed as "any course of action (or in action) relating to the selection of goals, the definition of values or the allocation of resources" (Olssen, Codd and O'Neil, 2004: 71). It encompasses the exercise of political power. In this research, I critically examine the informational base upon which policy is constructed. I put more emphasis on analysis of policy than analysis for policy. This provides a materialist Foucauldian analysis by examining the material conditions under which policy text is produced and critically explains associated institutional practices (see chapter 2 and 6).

Policy arises from contested preferences expressed by different stakeholders within the state, civil society and institutional influences. Policies are a result of complex interlinked processes involving pressures, advice seeking, consultation and recontextualization. Contextual, social, economic and political pressures drive education policy discourses. All of these pressures or drivers may influence education policy change or reform all at any one time or one of them may dominate the process at a specific time. Education policy does not emerge within a vacuum, "rather it is developed within the context of particular sets of values, pressures and constraints. It is also a response to particular problems, needs and aspirations"(Harman, 1984: 18). Policy reform may be driven by

- Perceived present deficiencies, and/or
- Motive to correct perceived ills to achieve some new goals, for instance responding to the deterioration of the environment.

Parents, professional groups, experts, corporate agencies, civil society's groups or politicians may advocate these drivers to achieve new educational goals.

The perceived needs for educational policy change (i.e. the deficiencies and ills) may be multifaceted. For instance some changes actually or virtually affect all people because of the framework of social practice. For instance the needs of the economy affect patterns of employment, business operations, and private investment. Economic considerations also manifestly influence educational policy and the school curriculum. In economic downturn, policy makers will often pursue a policy of basic skills development.

Moreover, policy change results from new knowledge and people must recognize a need for change. People are more likely to change if they understand change and how it works (Black & Atkin, 1996).

In respect to the setting for policy change, Black and Atkin (1996: 13) note that

> … influences on education can be powerful even when they are indirect. Innovations in education often stem from subtle and diffuse forces. At one level, a country's sense of itself pervades all social policy, education included. If it perceives threats to its historic values and longs for a remembered past, then it will look for educational programmes that promise to re-establish the kinds of curriculum and teaching style that its citizens believe once existed. If it is anxious to catch up with economic competitors, it may try to emulate the curriculum that seems to be advancing those apparently more productive countries.

On national interest, Dale (1989) observed that education policy in many cases and contexts takes the pupil as raw material to be transformed into an efficient worker by means of a vocationally dominated curriculum in an education system whose purpose is the development of the nation's human resources and their retention in a commodity form (i.e. available on the labour market). Other assumptions about policy change include a nation's economic competitiveness, and the policy change may wish to define competitiveness requires for a productive citizenry such as the skills required for employment. In other instances the education policy may be influenced by future contexts and goals to produce people who will be able to cope positively with changes such as 'globalisation' in different sectors, and would require the education system to provide a foundation for creativity and flexibility.

Globalization and education policy

Globalization, understood to be the expansion of transnational spaces and actors is dependent upon hegemonic power (Beck, 2000). It is spreading under the influence of state power's openness to enter international markets and politics. Burbules and Torres (2000: 83) note "Globalization has resulted in the 'breakdown of economic nationalism' and the emergence of a new policy consensus globally within education". Education

policy development is directly or indirectly influenced by global context as no nation can survive in isolation (see Chapters 2 and 6). Policy development is related to broad but interrelated categories of the international socio-political and economic world order. The traditional boundaries within these categories are undercut by technological development, which has improved global markets, communication, culture and political cooperation. In policy formulation it is important to understand how global trends such as social, cultural, political and economic forces transcended the context of national production of education policy. Similarly it is important to understand the origins and influences determining the production of a national education policy (see Chapter 2 and 6).

Political globalization has an influence on education policy discourses. This is related to international agreements and collaboration leading to the formation of organizations such as the United Nations, its organs and agencies. The international agreements on environment have fostered global cooperation. Through global cooperation nation-states enter into obligations to develop policies that are to ensure environmental improvement and protection. Examples are the United Nations Conference on Environment and Development (Agenda 21) (see Chapter 2) and the UN initiative on Education For All (1990), that obliges states to commit themselves to the provision of and access to quality basic education for all citizens.

Globalization has had the consequence of eroding the power of nation-states' power. Beck (2000: 14) calls this de-nationalization, but also refers to possible transformation into a transnational state. These developments occur as nation states increasingly have to respond to dictates of global obligations pertaining to environmental, economic, cultural, political and technological developments (see section 2.1). Grumley (1989) posits that globalism

> … imposes an impossible global scenario upon all which involves the hierarchisation of demands according to a long-term and universal strategy. The freedom, interests and strategic flexibility of particular struggling groups is inhibited, as they are required to accept the logic of modern society. Foucault maintains that the idea of society as a whole is a utopian idea that paralyses local initiative. (Grumley, 1989: 188)

Globalization imposes visions and commitments on the forces of local social struggle by ascribing interests to them from some global organizations (see Chapters 2). This is a form of governmentality that is affecting many countries today. The outcomes of such governmentality may be beneficial, and environmental issues including environmental education have benefited from global influences (see Chapter 2). Nation-states became members of global environmental organizations, signed conventions and protocols that obliged them to establish environmental awareness and training structures. To establish educational structures that would ensure compliance with the global policies, individual countries engage in protracted processes of constructing policies to strengthen their education systems. Despite these efforts, the question that Beck (2000: 154) posed still remains a challenge. He asked "*how is social justice possible in the global age*?" Consumerism and production are on the rise particularly in affluent nations, and poverty, health risks and natural resource depletion are also on the rise in the world's poor nations (see Chapter 2) with the gap between the rich and the poor widening.

3.5 Policy construction models and approaches

There is no one way or prescribed model of policy-making. What comes near to being universal in policy construction are political will and skills of policy planning and analysis. There are numerous policy construction models and approaches that policy makers could adopt. Policy-making models include rational, prescriptive, descriptive and contingency approaches, which are geared towards the circumstances and issues in question. Some follow the rationalist model of education policy creation that is based on reason and data to inform decisions. The rationalist approach would involve:

- Information gathering to identify present and potential problems and opportunities relevant to the education system,
- Identification of policy options and consideration of them in detail,
- Assessment of policy options to identify the 'costs and benefits' of the policy options,
- Relating policy outcomes and values to set criteria for preferred alternatives in terms of educational values, and
- Selecting the preferred education policy options. (Borman, Cookson, Sadovnik, & Spade, 1996: 4)

In summary, a rationalist policy-making process would involve an understanding of data, information, problems and opportunities, possible policy processes, consequences of each policy option and the criteria of assessing policy options and their values. The rationalist model is an ideal model in terms of its practicability and logic. It does not, however, always follow that a rational decision or process produces rational outcomes. Like most policy models, the rationalist model provides spaces for unpredictable outcomes. The model is challenged by decision-makers' lack of knowledge and skills and value consistency to achieve rationality (*ibid*). As discussed in Chapter 2, it is challenging for policy makers to produce a rationalist environmental education policy that addresses values as conceived by all concerned with diverse vested interests.

Borman, Cookson, Sadovnik and Spade (1996: 5) observe that "genuine educational reform starts from the local level with a concern with the mundane and those who believe that educational reform requires a national effort". Policy could be generated from a national level, driven by the state involving the top-down approach. Top-down policy generation "portrays policy generation as remote and detached from implementation. Policy then 'gets done' to people by a chain of implementers whose roles are clearly defined by legislation" (Bowe, Ball, & Gold, 1996: 274). This approach is characterized by lack of wide consultation and policy-makers remain detached from policy receivers or implementers. Moreover, it seems that

> … the image implicit in the conception of distinct and disconnected sets of policy-makers and policy implementers actually serves the powerful ideological purpose of reinforcing a linear conception of policy in which theory and practice are separate and the former is privileged (*ibid*: 276).

Taylor (2003 citing Parsons, 1995) describes how the rational positivist approach achieved ascendancy today as a policy-making approach. This has put power into the hands of professionals, experts, technocrats and bureaucrats who undertake the measurements and evaluation that underpin policy implementation. He deploys a post-structural approach arguing that policy should be negotiated rather than predetermined by the state or its agents. There are ways into the policy process, but still with varying

degrees of influence and generally all are dependent on being granted entry by the state which should not be seen as monolithic but as internally differentiated (Taylor, 2003). Taylor (*ibid*) advocates partnership in policy-making as a basis for a consultative democratic approach. He argues further that

> … partnership has become the currency of policy-making in countries across the world. This offers the opportunity to move from fixed ideas of power being rooted in the institution of the state to more fluid ideas of power shared, developed and negotiated between partners … it is no longer possible to concentrate the knowledge and expertise needed to solve social problems in one central point. (Taylor, 2003: 114)

The above quote is within the ambit of this post-structural research and provides the openings for considering Foucault's view on power/knowledge relations, in policy processes (see chapter 4). Further models demonstrating power relations in policy processes are identified by Scott (2000).

Scott (2000) identifies three policy process models: *centrally controlled; pluralist and fragmented; and multi-directed models*. The **centrally controlled** model is where policy makers put forward a set of policy recommendations for consideration by practitioners. Based on feedback from consultation processes policy makers write binding orders for implementation. This is seen as one-way, directive and depending on the intentions and motivations of the policy makers, designed to support a particular set of values (Scott, 2000). The **pluralist** model has democratic legitimacy as a variety of interested parties are taken into consideration at every level of its construction, i.e. policymaking, policy presentation, and policy-implementation (Scott, 2000).

Antagonists of this model reject it for separating policy-making from implementation, failing to recognize the power of the central authority to impose its will and for ignoring the serendipitous and muddled nature of the policy process. The pluralistic policy process model is understood as driven by diversity and influenced at every level by a variety of interests. In this model policy texts are

> … multi-authored and contested, causing adjustments to be made at every level. The completed text therefore, incorporates the views of a wide range of interests. This has the effect of creating a single text, which alone can satisfy all the interests concerned. The textual logic is triumphantly reasserted, even if the text is multi-authored. However, all the relevant interests are not equally represented and social actors do not have equal chances of influencing the construction of these texts. (Scott, 2000: 77)

The third model is the **fragmented and multi-directed** model which takes into account

- The type of flow or relay between the various constituent parts of the process,
- The needs to understand how powerful people can manipulate the process itself, and
- The need to attend to the unforeseen consequences of decisions made by policy-makers because they do not understand or do not have the foresight to imagine what will happen to their policy prescriptions during implementation. (Scott 2000: 22)

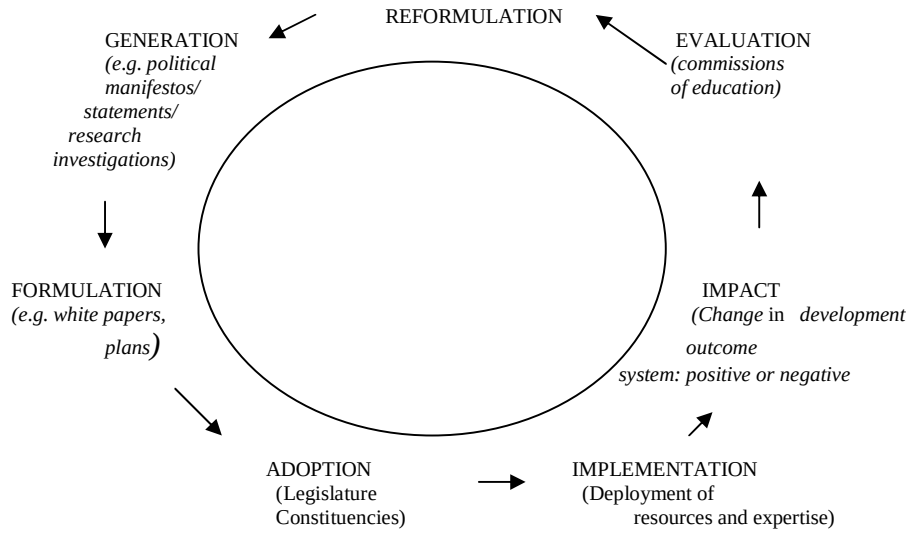
By taking into account the unforeseen consequences of the decisions made by the policy makers, the model ensures that what happens to the policy prescriptions during implementation do not come as a complete surprise and could be mitigated during implementation. One of the mediation strategies could be remaking or rewriting the policy during its policy cycles and stages (see section 3.5).

3.6 Policy-making theoretical cycles and contexts

Policy cycles: Policy processes are characterized by cyclical and continuous stages. The cyclical process is where the assessment of needs is followed by identification of objectives, by development and implementation of the plans to meet these objectives and by systematic monitoring and evaluation, which feeds back into the development of future plans (Taylor, 2003). However, Scott (2000) says the policy process is continuous rather than cyclical since it cannot be understood as a series of discrete stages. It logically progresses from formulation, implementation and reformulation. Its continuous process is characterized by complex negotiations of competing and conflicting interests. Nieuwenhuis (1996) is of the view that policy is a continuous and cyclical process.

Nieuwenhuis (1996) identifies seven logical cycle stages, namely: policy generation, formulation, adoption, implementation, impact, evaluation and reformulation. These stages are illustrated in figure 3.1 below. This research does not cover all the stages of the policy cycle as some stages are beyond the scope of the research topic.

Figure 3.1 Schematic presentation of the policy cycle



Source: Adapted from Nieuwenhuis, F.J. (1996: 7)

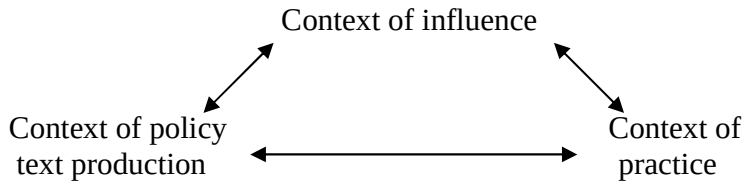
Generation of policy may be through commissions like in Botswana, Swaziland, Malawi and Kenya (Nieuwenhuis, 1996). Some policies are generated through political party manifestos such as Tanzania's policy on 'Education for Self-Reliance', the *Harambee* schools in Kenya, and the ZANU (PF) Manifesto of 1980 and 1985 and the *Imbokodvo* National Movement Manifesto of Swaziland (*ibid.*). Policy **formulation**: from the broad policies, educational policies may be formulated as White Papers on education (e.g. RNPE in Botswana) or as part of National Development Plans like in Lesotho, Malawi, and Swaziland (*ibid.*). The Development plans go through the legislative assembly for adoption legitimating the policy for an implementation stage (see Chapter 6). The **implementation** stage of the policy cycle may be a tedious exercise since broad statements need to be translated into specific deliverable activities by the responsible ministries such as the Ministry of Education. Nieuwenhuis (1996: 9) explains that

> Implementation is not a simple matter of changing existing legislation. It is a combination of technical and administrative processes that must be put in place. It concerns the development of resources and expertise. Various factors operating within the administrative structures of government may promote or retard implementation. These include the availability of resources and expertise, the feasibility of the policy, the goodwill of the bureaucrats responsible for implementation and the acceptance of the policy by the larger community.

The next policy cycle stage is its **impact** on the education system. The impact of the policy may be immediate, such as change of the education structure from seven to nine years of basic education following the 1977 National Policy on Education in Botswana. The impact may be prolonged, such as the transition from seven to six years of primary education in Botswana following the 1977 National Policy on Education. In the case of prolonged impact, an **evaluation** stage may be entered into. Evaluation of policy impact contributes to renewed policy **reformulation**. Reformulation of policy may open opportunities for the incorporation of curriculum innovation such as environmental education. This was the case in Botswana following the 1992 National Education Commission that led to the 1994 RNPE (see chapter 6). Related to Nieuwenhuis' (1996) schematic policy cycles are Bowe, Ball and Gold's (1996) policy-making contexts and Harman's (1984) stages in the policy processes.

Policy context: Bowe, Ball and Gold (1996: 284) illustrate policy-making processes by envisaging three primary policy contexts (figure 3.2) namely the context of influence, the context of policy text production and the context of practice.

Figure 3.2 Context of policy-making



According to Bowe, Ball and Gold (1996: 284 - 5), **context of influence** is

> … where public policy is normally initiated. It is here that policy discourses are constructed. It is here that interested parties struggle to influence the definition

> and social purposes of education, what it means to be educated. The private arenas of influence are based upon social networks in and around the political parties, in and around government and in and around the legislative process. Here key policy concepts are established (e.g. market forces, national curriculum, opting out, budgetary devolution), they acquire currency and credence and provide a discourse and lexicon for policy initiation. This kind of discourse forming is sometimes given support, sometimes challenged by wider claims to influence in the public arenas of action, particularly in and through the mass media. In addition there are a set of more formal public arenas; committees, national bodies, representative groups that can be sites for the articulation of influence.

Harman (1984) identifies activities in the context of influence as the issue emergence and problem identification stage of policy development. That is the recognition of a problem or matter needing government attention; how the problem gains place on the public agenda and the official agenda; early mobilization and support for particular strategies. This context and these activities are related to another primary context that is the context of text production.

In the **context of policy text production,** policy texts are articulated in the interest of the general public. According to Bowe, Ball and Gold (1996: 285),

> Their appeal is based upon claims to popular (and populist) commonsense and political reason. Policy texts therefore represent policy. These representations can take various forms: most obviously 'official' legal texts and policy documents; also formally and informally produced commentaries which offer to 'make sense of' the 'official' texts … again the media is important here; also the speeches by and the public performances of relevant politicians and officials; and 'official' videos are another recently popular medium of representation. Many of those towards whom policy is aimed rely on these secondhand accounts as their main source of information and understanding of policy as intended.

Bowe, Ball and Gold (1996) observe that policy produced through different media or text representation is not always coherent or clear. Its expression is fraught with the possibility of misunderstanding, as it is generalized, written in relation to idealizations of the 'real world', and cannot cover all eventualities. Policy evolves through the texts that represent it. It has to be read in relation to other policies, as intertextuality is very

important. Education policy texts themselves are the outcome of struggle and compromise. The control of the representation of policy is problematic, as there are competing interests and contexts to be taken into account. Harman (1984) associates the activities of this context with the policy formulation and authorization stage, that is the exploration of various alternatives, the formulation of prepared courses of action, the efforts to achieve consensus or compromise and the formal authorization of particular strategies through legislation, issue regulation or publication of a directive.

The third main context is the **context of practice,** which recognizes that policy is not simply received and implemented, rather it is subject to interpretation and then 'recreation'. Bowe, Ball and Gold (1996: 286) observe that

> Practitioners do not confront policy texts as naïve readers, they come with histories, with experience, with values and purposes of their own, and they have vested interests in the meaning of policy. Policies will be interpreted differently as the histories, experiences, values, purposes and interests which make up any arena differ. The simple point is that policy writers cannot control the meanings of their texts. Parts of texts will be rejected, selected out, ignored, deliberately misunderstood, and responses may be frivolous, etc. Furthermore, yet again, interpretation is a matter of struggle. Different interpretations will be in contest, as they relate to different interests (Ball, 1987). One or other interpretation will predominate although deviant or minority readings may be important.

Practitioners' influence on policy is accounted for by a number of contextual reasons. Some practitioners distort policy text in the exercise of relative power, which is limited power they could exercise in re-contextualizing policy texts. However, this relative power is always tested and contested by those who hold different positions in the policy process. Some practitioners will read policy with an eye to personal advantage. It may be material or otherwise. Harman (1984) identifies this context of practice as an implementation stage. That is the interpretation of policy and its application to particular cases and the development of a programme(s). However, Ball (1994) has added a forth and fifth context. These contexts are the context of outcomes, involving issues of justice, equality and individual freedom and the context of political strategy, i.e. identification of a set of political and social activities which might be more effectively tackled.

The last stage of the policy process according to Harman (1984) is the **termination or change** stage. That is termination either because the problem has been solved, the policy was unsuccessful or the outcomes were thought to be undesirable. Alternatively, it may be a major change in direction resulting from feedback or replacement by new policy.

3.7 Policy actors

Obvious players in national education policy formation or reform include the government, its party and major opposition parties (in a multi-party democracy), civil society, organizations, the corporate sector and lobby networks of education practitioners themselves (see Chapter 6). In a democracy, a wide range of actors normally participate in the policy formation process. The powers of authorization are shared between a number of participants. In terms of education policy, government may be 'passive' and the evolution of policy would depend on the interplay of pressure from teachers' unions, parents' associations, employers and other interests or may arise from the whims of the minister or president (Harman, 1984). Two categories of actors are identified, namely official and non-official. Official actors could be individual and organizational entities which have legally-based responsibilities. Harman (1984) identifies five categories of official actors.

These are:

- Senior Government at executive level e.g. president, parliament or political parties in government. Policy may need parliamentary debates, cabinet approval or exercise of executive power by individuals e.g. the president.
- Minister and major educational agency (ies) (the minister may delegate authority or power).
- Other education agencies such as curriculum development and evaluation and department or units of primary, secondary and teacher training and development and their responsibilities.
- Government agencies outside the education portfolio, but taking part in developing and implementing education policy such as the planning unit, buildings department, etc.

- Inter-governmental bodies and interest groups, media, trade unions, etc.

The non-formal category includes interest groups such as teacher organizations, non-governmental organizations and material developers, political parties and private media. These groups take the role of pressure groups, communicating demands to officials and statutory boards.

3.8 Policy process in practice

Policy process in practice depends on potential issues that education policy responds to. Policy may respond to public issues addressed or not addressed by official actors. The response could be addressing mechanisms operating to determine potential issues to receive attention. Harman (1984) argues that "the formation of an issue is dependent on the dynamic interplay between initiator and the *trigger device"* (*ibid***:** 22). A *trigger device* helps shape issues that would be defined by initiators. It could be changes in attitudes. In some policy initiatives, it is often difficult to identify a single *trigger device* since issues emerge out of a new climate of opinion with a range of different actors involved. Some policies arise out of budgetary or planning exercises. Some triggers may be publicity about major education developments elsewhere, or the impact of other education policies. With regard to policy formulation and authorization, the characteristic style is for the chosen or agreed alternative course of action to emerge from a process of extensive consultation (*ibid.*). Consultation between government and private agencies promotes broad-based consensus acceptable to both government and interest groups. The purpose of consultation is to get input from people about their needs and desires. The consultative approach may be incremental in search for a broad-based consensus acceptable both to government and key interest groups.

Getting broad-based consensus does not mean that conflicts of interests are absent. However, conflict is often not "allowed to develop into prolonged confrontation between the main actors" (Harman 1984: 24). Scriabine and Day (2000) say that policy-makers often focus on only the natural, political, and economic systems, leaving out the primary actors - the people. When people are involved in the policy process, particularly the poor and vulnerable groups, "more equitable and effective policies reflecting real needs are

likely to result. Empowered as shapers of policy, people begin to exert their rightful role in holding their governments accountable for carrying out appropriate policies" (Scriabine & Day, 2000: 86). This may legitimize the participatory approach to policy-making process which has gained currency as a democratic model in social practices. The participatory approach may involve a variety of stakeholders in public policy-making processes and attempts to devolve power to the people.

3.9 Power in the policy construction process

Educational policies could be rewritten or a legislative action may be taken such as an education act, an amendment of text, etc., "so that readers are more or less constrained than they were before" (Scott: 2000: 84). Scott observes that the "context can be changed by decisions made by the central authority, which operate as constraints on action at a local level" (*ibid*: 85). In short, policy agents such as "teachers operate in terms of these contexts and their powers to devise their own teaching and learning strategies are restricted"(*ibid*). An education policy may be prescriptive or non-prescriptive. A prescriptive education policy would give teachers limited space to interpret it independently. A non-prescriptive education policy text would give the teacher possibilities to be innovative and interpret it from his/her own perspective. In addition an education policy may be authoritative or non-authoritative. An authoritative policy text would use specific grammatical and syntactical devices that empower the author and disempower the reader (Scott, 2000) (see chapter 7 and 8). (A power relation is discussed in chapters 4 and 11). A non-authoritative education policy text would enable the readers to interpret it from their own perspective.

3.10 Policy text interpretation and implementation

Policy implementing agents' understanding of what policy-makers are asking them to do is not always in line with the intended policy outcome. Policy implementers may implicitly or explicitly interpret policy to fit their own agendas, interests, and resources. Consistent with their rational-choice teachers and other policy implementing agents responding to the ideas intended by policymakers may either ignore or modify the policy

makers' intentions. Spillane, Reiser and Reimer (2002: 392) in critiquing rational choice theories of change explain that

> Policy messages are not inert, static ideas that are transmitted unaltered into local actors' minds to be accepted, rejected, or modified to fit local needs and conditions. Rather, the agents must first notice, then frame, interpret, and construct meaning for policy messages.

Spillane, Reiser and Reimer (2002) observe that teachers' prior beliefs and practices can pose challenges to policy implementation not only because teachers are unwilling to change, but because their understandings interfere with their ability to interpret and implement the reform in ways consistent with the designers' intent. They argue that teachers may make superficial connections rather than deeper connections and hence they "may jump to conclusions and focus unduly on familiar aspects in understanding new policies or reform initiatives, and be ready to claim, we already do that in our school!" (*ibid*: 402).

Another challenge to policy implementation and interpretation is implementers' 'self image'. Teachers may read the reform as challenging the status quo, be it pedagogical practice or content. They may think that reform means that things have been done the wrong way or in a less effective way. Spillane, Reiser and Reimer (2002: 402-3) note that,

> To accept reform and become its advocates could cost teachers some loss of positive self-image. Teachers might become advocates by deciding that they were 'ahead of the curve' and already teaching in ways consistent with the reform. Or they might be motivated to discount the reform idea, seeing it as inconsistent with 'the reality' that they 'know best'. Alternatively, teachers might accept the need for change but attribute the reasons for their not adopting the reform to factors in their context (the children, the parents, lack of support from administrators). In any of these situations, the challenge to self-esteem and the tendency of human judgment-making to preserve self-esteem can work against convincing implementing agents to change and of the differences between their current practices and the goals of the policy.

Another policy implementation challenge is sense-making in social context. Sites of education contexts are multifaceted constructs "that include everything from national and

professional identities to the structures of the offices and organizations in which people work" (Spillane, Reiser, & Reimer, 2002: 404). Therefore education policy "implementing agents encounter policy in a complex web of organizational structures, professional affiliations, social networks, and traditions" (*ibid*). Both macro and micro aspects of the context are important for policy agents' sense-making of policy.

Language used in policy texts can also influence policy interpretation and implementation. Policy-makers use language to represent their ideas and to frame the way policy consumers and implementers should understand their practices. Language is a tool that "implementing agents can use … to represent rather diverse ideas about changing their behaviour, and those ideas do not always resonate with the intent of the policy" (Spillane et al., 2002: 407). Equally, historical context may influence sense making in education policy implementation. Historical perspective at both the individual and organizational levels may be a useful analytical tool for investigating the implementation of public policy (also see Popkewitz, 2000 and 2001).

Individual experiences and organizations' histories may be influential in the efforts of implementing agents to understand what a policy is asking of them. Policy implementers may be influenced by the complexity of what policy makers expect them to do. Often an incremental innovation may not face resistance from teachers. However, where innovation or policy reform requires discrediting the existing frameworks teachers may not feel comfortable. Teachers would not feel comfortable to lose their pedagogic or epistemological experience.

3.10.1 Policy text interpretation

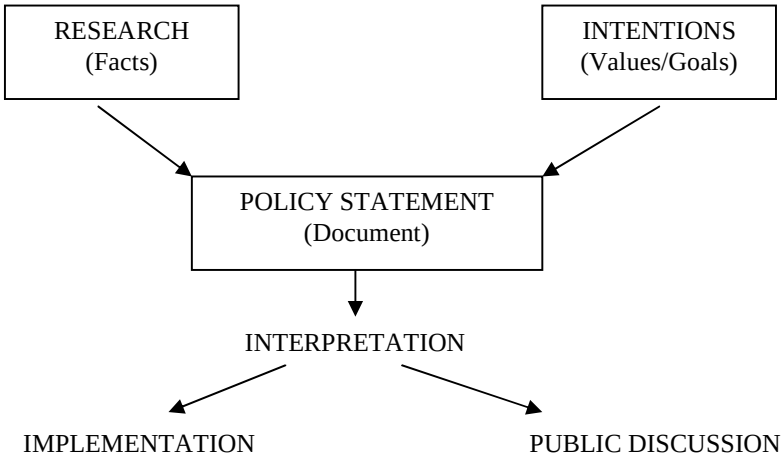
According to Olssen, Codd and O'Neil (2004: 60),

> In the technocratic view, policy documents are interpreted as the expression of political purpose that is as statements of the courses of action that policy-makers and administrators intend to follow… The document itself is regarded as a vehicle of communication between these agents within the process. Thus, policy statements or documents relate educational intentions, in the form of values and goals to factual information resulting from research.

Policy texts are often taken to be representative or evidence of what the author intended to say, that is 'the intentional fallacy' (Olssen et al., 2004). However, Olssen et al. (*ibid*: 61) critiques this view as "intentions are not the same as 'statements of intention', people can be mistaken about their own intentions". They argue that there is a difference between intention in the sense of an *a priori* plan and an action that is done intentionally. Moreover, 'intentions' implies rigidity. Policy text is normally addressed to a plurality of readers and hence subjected to a plurality of interpretations. Of crucial importance is the context in which policy text is interpreted. Policy agents or those who discuss them such as the teachers and general public interpret policy statements. Figure 3.3 below shows a technocratic view of policy documents that are interpreted as statements of the course of action that policy-makers intend to follow. Olssen, Codd and O'Neil (2004: 61) explain that,

> The technocratic model assigns discrete functions to the policy researcher (who is a disinterred provider of information), the policy-maker (who produces the policy) and the policy recipient (who interprets or implements the policy). The document itself is regarded as a vehicle of communication between these agents within the process. Thus, policy statements or documents relate educational intentions, in the form of values and goals, to factual information resulting from research. Those who would implement the policy must then interpret these statements.

Figure 3.3 Technical-empiricist model of the policy document



Another important element in policy analysis is 'linguistic idealism', a theory of language. This is important in education policy studies to understand various

interpretations by implementers. This approach involves policy text analyses by explicating the ideas within them and clarifying their intended meanings. This is called idealist because of the posited relationships between words (symbols), thoughts or reference and the real world (referent) (Olssen, Codd & O'Neill, 2004). The *symbolism* employed in policy text is caused by *reference* made to other *causal relations* and social practices to affect the proposed intentions (*ibid*: 63). This conception of language recognizes that texts

> … can produce real social effects, and how it can be political, not only by referring to political events, but by itself becoming the instrument and object of power. In particular, if it is to inform the analysis of policies produced by and for the state, it requires a conception of how language produces ideological effects by suppressing the contradictions of people's experience in the interests of preserving the existing social formation. (Olssen, Codd & O'Neill, 2004: 64)

3.10.2 Factors influencing successful policy implementation

Policy is always more than text and in education it interacts with those in other fields. Its implementation results in both the unintended as well as intended consequences (Fitz, Davies & Evans, 2006). Scriabine and Day (2000: 86) argue that "once made a policy needs to be explained. … It bridges the information gap between governments and their constituents, the national level and local communities and producers and consumers".

From conception policy texts are subjected to interpretations and discussions to understand what the policy makers intend to say. The discussions at every level are also meant to mediate and harmonize contestations in an endeavor to facilitate a common understanding before implementation. To achieve these, policy texts are subjected to what Bowe, Ball and Gold (1996) call decontextualization and recontexualization. In addition, Bowe et al. (1996: 280) say,

> Policy is a dialectical process, is dependent upon cooperation of the government and non-governmental organizations and individuals. Its outcome depends on the power the school and an array of structures could exercise… Texts carry with them possibilities and constraints, contradictions and spaces. The reality of policy in practice depends upon the compromises and accommodations to these in particular settings. Thus our conception of policy has to be set against the idea

> that policy is something that is simply done to people; although we accept that particular policy texts will differ in their degree of explicit recognition of the active (rather than passive) relationship between intended, actual and policy-in-use.

Translating policy into action and converting policy into programmes may result in outcomes very different from those intended. This may be the case particularly if policy design is not clear, with ambiguous goals, unclear and unrealistic objectives or is based on defective theoretical conceptions. The implementation strategy characterized by clear programmes that anticipate accurately the likely problems that require minimal attention effort have the best chances of success. The commitment and capacity of the bureaucratic system such as the political resources and means available to ensure compliance may increase the chances of policy success. Similarly, the environmental factors such as degree of support and opposition encountered in the community, ability of the beneficiaries to build effective coalitions of ongoing support and political pressure may be another recipe for policy implementation success (Scriabine & Day, 2000).

If policy is well formulated and articulated stakeholders such as parents and teachers may support and contribute to an adequate allocation of resources for its implementation. The key to moving policy from words to action may be to build capacity of national and local institutions to educate, inform, and communicate. This may legitimize and activate education policy. Scriabine and Day (2000: 86) argue that

> … policy development does not necessarily follow a linear pathway from formulation to articulation to implementation. Articulation for example, may stimulate re-examination, and perhaps even reformulation of a policy. Similarly, implementation may identify glitches that can trigger reexamination. This circular process, which education and communication can help facilitate, in fact improves policy relevance and effectiveness.

The problem would arise where there was lack of representation, marginalization or where there was exclusion of some active policy implementers such as activist, pressure groups and social classes. “The voices of the school heads, senior managers, classroom

teachers or the students remain for the most part, strangely silent" (Bowe, Ball and Gold 1996: 273).

Spillane, Reiser and Reimer (2002: 388) explore cognition in policy implementation focusing on how actors interpret the demands that are made on them. They argue that

> What a policy means for implementing agents is constituted in the interaction of their existing cognitive structures (including knowledge, beliefs and attitudes), their situation, and the policy signals. How the implementing agents understand the policy's message(s) about local behaviour is defined in the interaction of these three dimensions.

These three dimensions may be associated with power relations in policy interpretation and implementation. The Foucaultian point of view proposes that knowledge is related to power (Olssen, O'Neil & Codd, 2004) (see chapter 4).

Central to the analysis of Foucault's epistemology is the concept of power-knowledge (Foucault, 1972; Popkewitz, 2000; Olssen, Codd & O'Neil, 2004). It suggests that knowledge and power are always inextricably related and that there are always sociological implications to the production of knowledge. Theories of discourse are centrally concerned with the relationship between language and ideology in educational policy. In this sense, ideology refers to the relations between systems of representation and power, as it is unevenly expressed in the social system. "It refers not simply to 'false consciousness' as Marx held, but to meanings and representations that are partial, that is are true but which conceal other meanings or representations which are equally real" (Olssen, Codd & O'Neil, 2004). Language in policy processes can be an instrument of power, knowledge, communication and one seeks not only to understand how it is understood, but also how it is believed, obeyed, respected and distinguished. At the level of power, language can be understood to be coercive, repressive, or to bring about restraint (*ibid*). This is contrary to Foucault's view that power is not fixed, possessed or negative, but can enable or be exercised even at micro sites/levels through dispositions, techniques, examinations and discourses. As mentioned earlier (section 3.8) policy text

can be authoritative or un-authoritative, that implies the language used in policy may have a constraining or an enabling effect on the reader or policy agent.

3.11 Summary and conclusions

This chapter has demonstrated that policy development discourse "requires an understanding of the dynamics of the various elements of the social structure and their intersections in the context of history" (Olssen, Codd & O'Neil, 2004: 2). Policy is an official, highly politicized text aimed at achieving both social and economic objectives. It is influenced by ideological orientation, globalization discourses and monitored by governments to avoid slippages between policy construction and implementation. Some policy-making processes follow top-down models while others prefer post-modernist, pluralistic or bottom-up models. Post-modern policy processes advocate for participation and involvement of the general public. Policy-making involves processes of contestations and is certainly not a reprehensible exercise. Contestations produce a healthy site for policy-making processes as ideas are exposed to thorough testing through debates between advocates of different positions in a social setting. The results of contestation may be an evaluation/review of policy text interpretations in practice. The education policy-making process is a complex exercise and it is not possible to predict the effects of its impact. Policy texts carry with them possibilities, constraints and contradictions. Constraints and contradictions may breed resistance or make teachers feel battered and coerced into a change. That is they may compromise, feel suspicious and cynical but remain professionally committed in ways that hardly form the basis for acceptance. They may also be inspired and motivated by the policy. The policy-making process is both cyclical and continuous. Cyclical and continuous stage in the education policy processes implies opportunities for recontextualization that takes place through practice, particularly in schools. Reformulation and remaking in the policy-making process may indicate how different bodies are empowered in different ways to influence policy process.

The complexity of the policy process is furthermore brought about by different interpretations of policy texts by practitioners (see section 3.9 and chapter 10).

Practitioners' interpretation may be influenced by discursive context in which policies emerged, personal or localized advantages or material, which may have been created by particular readings of the text and material contexts. Policy text interpretation is influenced by a number of issues including global policy discourses, contextual factors and experience of the agents.

Theoretical insights into education policy development discourses provided in this chapter are extended further in the next chapter that focuses on Foucaultian genealogy and concepts of governmentality. The next chapter provides further understanding of how power operates within policy discourses. It is linked to this chapter to the previous (Chapters 1 and 2) by explaining the forces that may account for the influences of policy initiation, adoption and implementation.

CHAPTER 4
GENEALOGY AND GOVERNMENTALITY IN RESEARCHING POLICY PROCESSES

4.1 Introduction

The previous chapter has placed educational policy development processes within a wider theoretical context. This chapter focuses on the theoretical framework informing the research. It focuses on genealogy and governmentality in policy development and implementation/interpretation. It draws on post-structural critical theory to interrogate environmental education policy discourses. The first section (4.2) focuses on **genealogy** as postulated by Foucault. Foucault was a French philosopher who referred his projects as genealogy (see section 4.2.1). This chapter also draws insights from Foucault's supporters and critics for a deeper understanding of Foucaultian genealogy in environmental education policy research. Genealogy is deployed to assist in reviewing the genesis of related policy developments in Botswana. The second section (4.3) is on '**governmentality**', which is used to explore power relations within policy interpretation and implementation. In this research, application of governmentality focuses more deeply on influences in historical context and on the broader power effects of government policy. Before undertaking a review of both genealogy and governmentality I give a synopsis of the following theoretical frames and concepts informing this research which are associated with genealogy and governmentality in this study:

- Critical theory,
- Critical post-structural theory, and
- Deconstruction.

Critical Theory

Critical theory (as used in the post-structural research tradition) is used as an overarching social theory to interrogate policy development and interpretation processes**.** Choice of this theory is based on the fact that it "seeks to produce practical, pragmatic knowledge that is cultural and structural, judged by its degree of historical situatedness and ability to produce praxis, or action" (Denzin et al., 2003: 249). Moreover critical theory "does not

determine how we see the world but helps us devise questions and strategies for exploring it" (*ibid*: 436).

How (2003: 3) noted that critical theory "always had a concern with how things had come to be the way they are and what they might be in the future, a concern with the wider truth or validity of what is currently the case". Marcuse (1973) cited in How (2003: 3), argues that "the real field of knowledge is not the given facts about things as they are, but the critical evaluation of them as prelude to the passing beyond their given form". Critical theory therefore provides a framework for critical analysis of the Botswana policy processes and it is in this sense that it is used in this research (see chapters 6 to 10).

Critical post-structural theory

The methodologies of **critical post-structural** theorists such as Foucault, and Popkewitz guided this policy research. Post-structuralist, as opposed to a structuralist approach "assumes that the regularities identified are not the same in all historical periods and in all cultures, but rather are specific to particular times and places" (Alvesson & Skoldberg, 2000: 49). Alvessen and Skoldberg (2000: 50) argue that Foucault "stood opposed to a marked tendency amongst structuralist writers to a prioritizing of the structure over the part, or assuming the pre-existence of the whole over the parts, whereby the units could be explained once the essence of the structure is uncovered" (*ibid*: 50).

A post-structuralist approach allows for identification of relations between knowledge and power in policy-making and implementation processes. It allows for description of the relations among policy texts and establishment of the systematic sets of relations and transformations that enable different forms of knowledge to emerge (see chapters 7 and 8).

Deconstruction (Derrida, 1997; Derrida, 2001) is a methodological form of the post-structuralist approach although some researchers treat them separately. This research provides a synchronic textual analysis to complement genealogical histories to

understand the basis of power and knowledge relations in education policy discourse. According to Olssen, Codd and O'Neill (2004), deconstruction confines itself to synchronic textual analysis, seeking to isolate the metaphysics in the text. For Phillips (2000: 167), deconstruction creates the conditions upon which it is possible for things to change, "opening boundaries up to alterity - almost literally making a negative space - that welcomes the surprise of future events. It makes or allows things to happen". The study does not focus on policy text 'destruction'. It rather seeks to identify opportunities for future improvement in environmental education policy development and implementation.

4.2 Genealogy as a Research Methodology

4.2.1 Introduction

The first part of the research focuses on the genealogy of the environmental education policy development process in Botswana. It draws on genealogy as a research methodology in education policy (a Foucaultian methodology). Genealogy, as conceived by Nietzsche (1968) who influenced Foucault (1984), offers a methodology for studying and writing educational policy history. Genealogy as a methodology of policy analysis studies both discursive (policy discourse) and non-discursive practices (these are social practices of everyday life) and the relationship between these (Alvessen & Skoldberg, 2000). As Olssen, Codd and O'Neill (2004: 47) put it,

> It demonstrates the potential of the discourse to impact and shape life at the physical level, based upon interaction of power and knowledge in shaping historical conditions, which in turn makes particular structures realisable and particular conceptual frameworks possible.

I use genealogy as a methodology to study and document historical environmental education policy processes in Botswana. I apply genealogy to explain the knowledge element in the development of environmental education policy, as influenced and shaped by power relations and structures and by tracing its descent and emergence in the context of history. As observed by Olssen, Codd and O'Neill (2004: 48) genealogy "is interested in institutional analysis and technologies of power aiming to isolate the mechanisms by which power operates." Alvessen and Skoldberg (2000: 224) complement this by saying

it studies the origins of discourses, "the clue being to treat the discourses as such, with their own distinctiveness and regularity, instead of some underlying ideas or conceptions underlying the discourses."

As explained in chapters 1 and 2, I am interested in a deeper understanding of the development of environmental education policy, looking at how environment has become important in Botswana's national curriculum. As Popkewitz and Fendler (1999: 18) put it, I "examine the present assumptions about action and progress, for example, as resulting from multiple and uneven historical trajectories from which the ideas and events of the present are constructed". McGregor (2004) illustrates how unmasking the written word can bring about a different perspective and deeper understanding of whose interest is being served using critical discourse analysis (CDA). Critical Discourse Analysis is used to further understand the historical development of the policy, which forms the basis for present policy practices (see section 5.5.2 and Chapters 7 and 8).

4.2.2 Foucauldian methodology

Foucauldian methodology is based on two approaches, that is, *archaeology and genealogy*. Slattery (2003: 210) describes **archaeology** as a methodology

> … by which the researcher might burrow down deep into history, culture and *psyche* of each society to discover the very essence of its identity and character, the power-knowledge relations upon which it is based. This methodology required the historian to immerse him or herself in the assumptions and lifestyles of a particular culture and then trace them back to their origins using a genealogy or family tree of dominant discourses throughout its history and its development.

Archaeology is concerned with the description of the "historical presuppositions of a given system of thought" (Olssen, Codd & O'Neil 2004: 45). Genealogy is concerned with the tracing of historical process of *descent* and *emergence.* It does this by tracing an essential, historically constituted tie between power and knowledge, and constitutes a causal explanation for change in discursive formations (Olssen et al, 2004). Genealogy takes events as they happen, looking for crooked contours that may not be spotted and being aware that event is an episode but not an end. Archaeology is centrally concerned with uncovering the

> … rules of formation of discourses, or discursive systems. In a technical sense, it proceeds at the level of statements (*enounces*) searching for rules that explain the appearance of phenomena under study. It examines the forms of regularity, that is, the discursive conditions, which order the structure of a form of discourse and which determine how such orders come into being. It is not analysis of 'truth games'. Discourse is thus analyzed in terms of the operation of the rules that bring it into being. Archaeology attempts to account for the link between perception and action and why at different periods specialists in knowledge perceive objects differently. (Olssen, Codd & O'Neil 2004: 46)

Darier (1999: 9) observes that archaeology utilizes theoretical knowledge (*savoir*) in order to analyze forms of knowledge. It examines all forms of policy in their historical context, taking as its starting point the historical constitution of scientific concepts, detailing the types of progress which characterize them, the means by which truth is produced, as well as the criteria of rationality that they establish. Foucault's archaeological period (i.e. before the 1970s), attempted to undertake excavations of historical texts revealing the various historical layers of what constitutes, or constituted knowledge. Foucault was interested in what he called '*epistemes*', which is the totality of the relations that can be discovered for a given period. However, while archaeology yields rich insights, it is limited by its inability to account for the historical emergence and transformation of discourses. Foucault addressed this limitation by shifting his methodology to genealogy, which traces the origin of the discourses. The shift to genealogy was not a complete abandonment of archaeology; rather the intention was to complement it. According to Alvessen and Skoldberg (2000: 224), "Foucault's interest was more in how discourse constitutes objects and subjects than in the details of language use in social interaction."

> At the very source of thinking the genealogist places randomness, discontinuity and power. That is, the discourses emerge not in a planned way, but alterily, as do their combinations: they are disjoint over time and when they merge with each other they do so temporarily and partially rather than as continuing, homogenous expressions of an initial thought: their origin is crassly materialistic, expressing diverse wills of power, not nobly governed by reason as claimed in the later rationalizations … (Alvessen & Skoldberg, 2000: 224)

Foucauldian methodologies complement each other in that archaeology studies the forms of the discourses and genealogy their power-related origin. As Alvessen and Skoldberg

(2000: 224) put it, “Archaeology provides the distance, the detached description of the discursive formations and genealogy the engagement, the critically committed probing of the roots of societal practices”. The complementarity of archaeology by genealogy is not equally balanced as genealogy dominated archaeology in Foucault’s thinking and projects, particularly in his latter work (after 1968 to 1984).

Secondly, Foucault’s shift to genealogy is related to an increased interest in power. Foucault focused on both the non-discursive and discursive practices, and the relationship between them. He sees power as precondition for knowledge, for instance enabling meticulous observations and classifications which otherwise would be impossible. He also sees knowledge as making power possible arguing that “the exercise of power is not arbitrary, but the knowledge – the discourse of mental illness – is the basis of power, the functioning of the psychiatric institution” (Alvessen and Skoldberg, 2000: 225). Foucault’s *genealogy* offers methodology for studying and writing history. Olssen et al. (2004: 42) cites Nietzche (1969), saying

> Genealogy seeks to trace the lines of the battles that have gone into making the world, as we know it in the present, natural. In this sense it contributes to problematizing our taken-for-granted beliefs and conceptions about the way the world is.

Through the genealogy of interaction of **power and knowledge,** the historical conditions shaping life are realised and particular conceptual frameworks made possible. As Alvessen and Skoldberg (2000: 224) put it, it studies the origins of discourses, “the clue being to treat the discourses as such, with their own distinctiveness and regularity, instead of some underlying ideas or conceptions underlying the discourses”. Foucault believed that truth cannot be separated from the procedures of its production. Therefore, his genealogical approach was “concerned with the processes, procedures and apparatuses by which truth and knowledge are produced, in what Foucault calls discursive regimes of the modern era” (Tamboukou, 1999: 202). Olssen et al. (2004) argue that genealogical analysis aims to explain the existence and transformation of elements of theoretical knowledge by situating them within power structures and by tracing their descent and emergence in the context of history. It traces an essential, historically constituted tie

between power and knowledge, and constitutes a causal explanation for change in discursive formations and episteme (*ibid*). Popkewitz, Pereyra and Franklin (2001: 23) describe genealogy as

> … a way to consider how systems of reason change over time as cultural practice. Central is how problems of social and individual life become constituted as they do, and change so as to effect the conditions in which we live. Thus a genealogical approach provides a way to locate change in the systems of knowledge that organize the 'self' through the effects of power.

In this research, genealogical analysis explains the existence and transformation of elements of education policy to include environmental concerns in education policy and how actors interpret the policy. Genealogy is applied in education policy discourse analysis, where discourses "with their specific problems and solutions relative to a particular historical time are amenable to such an analysis. It analyses the discourse in its relation to social structures and has an explicit focus on power and on bodies" (Olssen et al., 2004: 48). They continue to say "genealogy traces the jolts and surprises of history in terms of the effects of power" (*ibid*). This is reiterated by Tamboukou (1999: 202) who argues that

> Genealogy conceives human reality as an effect of the interviewing of certain historical and cultural practices, which it sets out to trace and explore. Instead of seeing history as a continuous development of an ideal schema, genealogy is oriented to discontinuities. Throughout the genealogical exploration there are frequent disruptions, uneven and haphazard processes of dispersion, that call into question the supposed linear evolution of history.

Genealogy goes further to trace possible ways of thinking differently, instead of accepting and legitimating what are already the 'truths' of our world. It offers a historical answer to the philosophical question as to how such things were constituted, by employing four rationalist arguments.

> First is the argument of dispersal, by which Foucault's analysis disrupts the supposed unity of reason, the subject and history. Second is the argument of reversal, shattering self-evidences of Western civilization, like madness or the sovereignty of the state… Third is the argument of critique, which is at the heart

> of Foucault's project. Instead of criticizing the past in terms of the present, the Foucauldian histories criticize the present by reflecting upon the ways the discursive and institutional practices of the past still affect the constitution of the present. Fourth is the argument of singular enlightenment, Rajchman chooses the term 'scepticism' to describe Foucault's position in the line of philosophical tradition. (Tamboukou, 1999: 202)

Tamboukou (1999: 205) argues, "Genealogy provides a functional microanalysis of power relations, operating on the smallest and most insignificant details. These are always local but impossible to be localized for good, 'passing through every point', producing rather than repressing reality". Foucault sees genealogy as 'eventalization', by searching dispersed events to trace discontinuities, and recurrences where traditional historiography sees continuous development, progress and seriousness. Genealogy begins eventalization by interrogating

> certain evidences of our culture on how things should be; 'making visible a singularity at places where there is a temptation to invoke a historical constant, an immediate anthropological trait, …the genealogist does not regard singularity as simply an isolated piece of data to be added in his/her documents. The event under scrutiny is to be analyzed within the matrix of discursive and non-discursive practices that have given rise to its existence. (Tamboukou, 1999: 207)

Alvessen and Skoldberg (2000: 225) observe that "in the spirit of post-structuralism, genealogy aims to disrupt social conventions and norms. Its value lies in imagining the human world as thoroughly social and historical and susceptible to immense social variety and change". It intends to show that the dominant discourses defining the social universe as natural conceal particular social interests and power relations. Although genealogy assumes an intimate tie between institutions and discourses, its aim is primarily to disturb the "normalizing" role of the dominant discourses. It reveals how dominant knowledge shapes human life by naturalizing and normalizing the construction of personal and social identities. Discourses that carry public authority, such as education policy discourse or environmental and education for sustainable development discourse (see chapter 2) shape identities and regulate bodies, desires, selves, and populations. Through genealogy of environmental education policy the knowledge and voices of those excluded can potentially be recovered. Genealogy attempts to diagnose lines of fracture

and transformation, which indicate a consolidation of regimes of government (Dean, 1999).

This research historicizes the introduction of environmental education as an educational reform in Botswana, "providing a way to rethink the patterns of governing" (Popkewitz, 2001b: 23). I use the concept of genealogy to analyze the interrelatedness of the knowledge of schooling as a cultural practice that changes over time as it overlaps with social and institutional practices. Genealogy works with the aim of producing "knowledge as perspective', of understanding and explaining the present, a knowledge that is itself openly judgmental and value-laden but not in the positivist sense of 'bias' that once dominated sociology and the history of social science" (Popkewitz, Pereyra & Franklin, 2001: 23).

4.2.3 Genealogy of education

> … Foucault pointed out that genealogy was an attempt to liberate historical knowledge from subjugation, that is to say, to make it capable of fighting against the coercion of the universal, formal, and scientific theoretical discourse. In other words, genealogy was a means of rejecting the effects of power derived from theories defined as 'scientific,' in order to eliminate the tyranny of global and globalized discourses that were established with their particular privileges and institutional hierarchies. (Varela, 2001: 110)

Varela (2001) attests that a genealogist does not depend on simplistic binary logic such as dominators and dominated. Genealogists attempt precisely the opposite to accomplish an ascending analysis of power relations in order to explain how disequilibrium of power, or, in certain cases, domination, were established.

A genealogical analysis traces how discursive elements such as educational ideas and pedagogical practices break up and reconnect to form new discursive elements and beliefs (Johannesson, 2001). It enables us to see how the significance of these elements of discourse emerged in a particular place and time. This research traces the connections of ideas and searches for ruptures in the educational policy discourse in Botswana with reference to environmental discourse in education policy discourse. It focuses on the

specificities of the historical conjunctures of the policy reform, as opposed to relating the policy reform to universal explanations of modernity and evolution of societies (Johannesson, 2001). The methodology assists in tracing how the education policy emerged and relates to other practices and how these policies have received their symbolic capital and power.

4.2.4 Knowledge and power

This section deals with knowledge and power within education policy. It explores the genealogy of how power relations influence policy interpretations and decisions by the policy implementers. The focus is not only on historical knowledge generation and bio-power but on policy discourse origins, practices, constituted subjects and objects.

As Popkewitz, Franklin and Pereyra, (2001: 12) put it

> Knowledge serves as a framework to understand social interests that are bought into schooling to produce inequities and injustices. Such efforts include explicit social control interpretations that explore how processes of curriculum selection, organization, and delivery differentiate curriculum content along class and racial lines and impose that content on children in ways that channel these different children to different and unequal occupational and citizenship roles …

Popkewitz, Franklin and Pereyra (*ibid*) discuss the notion of regulation as one of the sites through which power operates in education policy discourse. Regulation is related to a repressive notion of power, such as how curriculum, for example, differentiates children in conformity with some *a priori* structures or a historical "unconsciousness whose consequence is to produce advantage and disadvantage in society" (*ibid*: 12). They also introduce the concepts of voice and resistance in relation to predefined forces or a foundation of dominance and repression. For Foucault, power should not be perceived as 'domination', however he acknowledges "the existence of relations of domination in specific cases" (Darier, 1999: 220). He sees power as a strategic game going beyond being repressive and negative. It operates in "a non-deterministic 'field of power' and in a non-linear, non-top-down dominating/dominated type of relationship" (*ibid*).

> … power does not constitute some kind of abstract property that can be isolated and studied in itself. It lacks an essence and is not measurable; it exists only in

> relationships and when it is expressed in action … Foucault is not interested in who 'has' power over others, due to office, charisma, knowledge, or any other power base. Such an approach leads to the view of power as something unambiguous and centralized, a view that trivializes the phenomenon and causes us to disregard its multifaceted character. Power, according to Foucault, does not allow itself to be localized and fixed. (Alvesson et al., 2000: 225)

Education policy documents text and implementers' power-knowledge is vital in policy discourses as they can influence the interface between policy practice and effects of power. As Alvesson and Skoldberg (2000: 226) put it "Power relationships can be best understood from the techniques and forms in which they are expressed. The exercise of power is the central issue; the practices, techniques and procedures which render power effective." The knowledge that teachers posses may constitute power and how they exercise it may render the policy ineffective or effective. This is the crucial point not to be neglected in policy analysis. Policy designers do not only exercise power nor is it the prerogative of policy implementers only, but all actors, both the governors and the governed, exercise power.

Foucault argues that power and knowledge are parallel concepts, but of course not identical. He focuses on power in knowledge not power of knowledge. He sees the exercise of power and the application and development of knowledge having an intimate relationship with each other. It should be noted however that knowledge and institutional control are closely associated. For instance, in school, knowledge is at the base of the exercise of power, while the exercise of power also produces knowledge. To put it in another way, Alvesson and Skoldberg (2000: 227) say power becomes a crucial dimension in knowledge supported by institutional practices. "Not only openly repressive knowledge but to a large extent even 'helping' and 'progressive' knowledge is linked to power and functions in a disciplinary way".

Power relations demand the active participation of the subjects no matter how this may be opposed to their desires and needs. Power is seen as something that "circulates, that functions, that is expected through networks in which individuals are never inert blank spaces or accomplices of power, but are instead the elements used for its re-composition" (Varela, 2001**:** 115). Popkewitz (1991: 30) says

> Foucault argues that power is embedded in the governing systems of order, appropriation, and exclusion by which subjectivities are constructed and social life is formed. This occurs as multiple layers of daily life, from the organization of institutions to the self-discipline and regulation of the perceptions and experiences according to which individuals act. This entails consideration of the ways that knowledge promotes certain truths as they are inscribed in the problems, questions, and responses that are secure and enhance social life and its well-being.

Power is said to be circulating, functioning and exercised. However, it can be resisted by subjects. In addition a Foucauldian understanding of power proposes that although power may be opposed to the desires and needs of the subjects it demands their active participation (Varela, 2001). The effects of disciplinary power may make the subject react to exercise their own power. Foucault (1972) and Gore (1998) view knowledge as a technology of power (see section 4.2.5 below).

4.2.5 Knowledge as technology of power

Knowledge as technology of power is concerned with knowledge of the self and society to produce a better and more just society (Gore, 1998). Knowledge of progress is itself a social practice that ties issues of power to the construction of identity *(ibid.*). With modernity there "was a shift from idolatry of those at the top of the social hierarchy … to an individualistic focus on those at the bottom, who could be surveyed, observed, and controlled" (Popkewitz, 1991: 38). For Foucault power is not always negative or threatening. It is not a one-way relationship nor does it only lie in the social structures. It can be positive, liberating and equally lies in personal relationships and pervades all aspects of social life (Slattery, 2003). Power encourages people to take control and responsibility for their own lives and actions, even if it is under threat of confinement or punishment. Even in the direst of circumstances a subject can resist and challenge the authority of those in power. Power is created, debated, controlled and distributed by means of discourse in modern society. According to Popkewitz (1991: 20)

> The holders of power-knowledge control the agendas of debate and discourse and so enjoy ideological power as well as any physical or legal power they may hold … power struggles not only between power holders but between those in power and those subjected to their laws and their rulings as the powerless – the victims

> of control, suppression and exploitation – have learnt over time how to resist and even overthrow controls, be it slavery or social exclusion.

Technologies of power determine the conduct of individuals and submit them to certain ends or domination, an objectifying of the subject. Technologies of power are the heart of the elaboration of governmentality (see section 4.3). Technologies of the 'self' permit individuals to effect by their own means, or with the help of others, a certain number of operations on their own bodies, and souls, thoughts, conduct and way of being so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection or immortality (Popkewitz, 1991).

4.2.6 Critical views on genealogy

Although Foucauldian genealogy provides the tools for policy research, it has been critically reviewed and debated by authors such as Alvesson and Skoldberg (2000) as a research theory and methodology in education policy. They identified four limitations associated with genealogy as a research theory and methodology. The first limitation is related to a categorical linking of power and knowledge. They argue that the link of power/knowledge ought to comprise the researcher's own knowledge as well. Foucault "himself had at the time of his death entered a new phase of research so as not to be entirely swallowed up by the problematic of power" (Alvesson & Skoldberg, 2000: 231).

The second problem concerns the limitations of the micro focus which Foucault advocates. The criticism against the idea that power has a centre or an essence is a cogent one, but does not prevent some apparently crucial phenomena from escaping a Foucauldian perspective, for instance power relationships linked to economic relationships or the nation-state (Walzer, 1987) (see Chapter 2).

Foucault neglected some aspects in social practices such as the socially constructed stabilities in power relations in his methodology. A counter argument is that Foucault was interested in micro level and in specific forms of power.

The third problem is the broad "pessimistic view of new forms of knowledge and technology. Everything tends to become a question of power and normalization" (Alvesson & Skoldberg, 2000: 231). Foucault does not provide clues as to what is to be regarded as problematic in failing to distinguish positive features in technological, jurisdictional and medical advances as everything becomes 'problematic' in Foucault's view. The fourth problem with genealogy identified by Bourdieu and Wacquant (1992) concerns Foucault's focus on the disciplinary bio-power which they argue underestimates the 'symbolic violence' which permeates the various 'fields' of society. However Alvesson and Skoldberg (2000: 232) posit that the critique may seem to miss the mark, since "Foucault also includes manipulative aspects of power. However, these constitute a roundabout route to the disciplining of the body, the bio-power which is reached here in an indirect way". The four limitations of Foucault's genealogy provide further insights into educational policy analysis.

Foucault's genealogical methodology has displayed dynamism in its analysis. From the 1970s Foucault's genealogical writings became indisputable. As Smart (2004: 47) puts it,

> … such shifts and transformations as are evident, do not signify a rigid division or 'break' between earlier and later writings, rather a re-ordering of analytic priorities from a structuralist-influenced preoccupation with discourse to a greater and more explicit consideration of institutions, social practices and technologies of power and the self and their complex inter-relationships with forms of knowledge, in brief to the interface between non-discursive and discursive practices.

Foucault, in his book *Discipline and Punish* (1979) believes that through 'discipline' a new object is formed – he sees this disciplinary technique as procedures that reduce political power and sovereign power. He calls this a technique of subjugation (*assujettisement*). His critics such as Visker (1994: 118) conclude that this shows that "Foucault never really succeeded in leaving the hypothesis of repression behind him and his attempt to do so could only temporarily displace the problem". Interestingly and in accordance with post-structuralist assumptions, Foucault does not make universal claims about the nature of power. His claims are contextually constituted (that is based on his

project). However, Foucault does not give alternative directions, just as his critics do not offer alternative history that might demonstrate the existence of a power-free evaluative point.

4.2.7 General implications for genealogical methodology

For Foucault (1979), power is always associated with knowledge and their relationship is crucial in understanding the discourses in which they operate. The power-knowledge linkage may stimulate resistance or normalization of certain social practices. Olssen, Codd and O'Neil (2004) claim that even knowledge which claims to function in an emancipatory mode can contribute to inscribing more or less limited forms of subjectivity through the ideals and conceptions of normality mediated. Various ideas of equality guided by this principle shape and regulate our self-understanding by establishing norms for thinking, feeling and acting. Foucault (1978: 100) noted that

> [W]e must not imagine a world of discourses divided between accepted discourse and excluded discourse, or between the dominant discourse and the dominated one; but as a multiplicity of discursive elements that can come into play in various strategies. It is this distribution that we must reconstruct with the things said and those concealed, the enunciations required and those forbidden that it comprises; with the variants and different effects – according to who is speaking, his position of power, the institutional context in which he happens to be situated – what it implies; and with the shifts and reutilizations for contrary objectives that it also includes.

As indicated in Chapter 1, this research deploys genealogy to investigate policy processes from macro to micro power at school level. The methodology assists in revealing the said and the unsaid, the teacher's position of power and in Foucault's thinking the discursive and the non-discursive practices (these process are presented in chapters 6 to 10). Genealogy is sometimes referred to as the history of the present. It is not a turn to teleology that is it does not involve assumptions of progress or regress (Kendall & Wickham, 1999). Kendall and Wickham (1999) further argue that it involves histories that never stop helping us to see that the present is as strange as the past. It helps us to see how the present emerged from the past, which is it uses history as a way of diagnosing the present. Using Foucauldian method entails not allowing history to settle and stop on a

patch of imagined sensibleness in the field of strangeness. History should be used not to make us comfortable, rather to disturb the taken-for-granted. To strengthen the genealogical analysis, I have deployed governmentality to further understand practices at school and policy agents' levels with regard to environmental education policy interpretation and implementation. Section 4.3 below explores the notion of governmentality in relation to education policy.

4.3 Governmentality in education policy interpretation and implementation

4.3.1 Introduction

This section explores the notion of governmentality in environmental education policy processes. It addresses issues related to power and knowledge in environmental education policy implementation. This research has deployed Foucault's notion of **'governmentality'** as a type of analysis to guide a deeper scholarship in policy analysis. "For Foucault, governmentality seeks to explore power relations, particularly in the domain of what constitutes conduct" (Lechte, 2003: 98).

This section explores 'governmentality' in policy power/knowledge relations (Dean, 1999; Popkewitz, Franklin & Pereyra, 2001), and examines a) institutional centralization, b) emergence of new instrumental knowledge, and c) diffusion of power effects (see sections 4.3.3 and 11.1). It explores the interplay between normalizing strategies and strategies of resistance and interrogates where and how these occur (Darier, 1999). Foucault's concept of governmentality provides a lens through which the interface between policy development and interpretation in education policy is analyzed.

4.3.2 The notion of governmentality in education

Governmentality in social enquiry can be traced to Foucault's lecture of 1978, at the College of France. It became widely published as a concept and is claimed to have responded most explicitly to the "changing status of liberal government and the recession of the welfare state ideal" (Dean, 1999: 2). According to Darier (1999) the notion of governmentality developed in Foucault's genealogical period (from late 1960s to 1984). It offers a way into a historical survey of the conditions for the emergence of modern

forms of power. The notion of self-government is based upon self-examination and guidance of conscience associated with the self. Governmentality involves ethical practices intrinsic to our own conduct and how we exercise reflection upon our own actions. It is not confined to a narrow equation of power with sovereignty and law only. For Foucault, the practice of government involves possible fields of power relations, a mode of action exercised over the actions of others who have available to them a range of possibilities (Smart, 2004).

Governmentality encompasses both the individual and centralized effects of political rationality. Foucault (1979) describes governmentality as the art of governing in which the tactics of regulating society would interrelate with the patterns of personal decision making and 'reasoning' through which individuals judge their own competence and achievements (see Chapters 10 and 11). According to Dean (1999) the term 'governmentality' deals with how we think about governing with the different mentalities of government. *Government* "here involves some sort of attempt to deliberate on and to direct human conduct. From the perspective of those who seek to govern, human conduct is conceived as something that can be regulated, controlled, shaped and turned to specific ends" (Dean, 1999: 11).

Dean (1999:18) observes that

> … we govern others and ourselves according to what we take to be true about who we are, what aspects of our existence should be worked upon, how, with what means and to what ends. We thus govern others and ourselves according to various truths about our existence and nature as human beings. On the other hand, the ways in which we govern and conduct ourselves give rise to different ways of producing truth.

Therefore, government is not only concerned with how we are governed but with both how we govern ourselves and how we govern others. Foucault sees government as guiding conduct in an active and positive sense throughout the whole fabric of society, not only in the formal legal domain of the state. Government includes reflection on the question of the best way of governing in a given context such as in education or community relations (Lechte, 2003). This research investigates governance in education

and how participants govern themselves in relation to environmental education policy implementation in schools.

As indicated in section 4.2.4, a Foucaultian's view of power is that it exists in relationships and when it is expressed in action. "It is expressed in various micro contexts, and cannot be restricted to any particular unit or size". In addition, Henning (2004: 23) argues that post-structural critical theory "embraces the positive and not just the negative aspects of power. It does not only criticize unequal power relations, but attempts to shift the balance of power to become more equitable". Fendler (1998: 67) citing Foucault (1980) notes that "power is not only negative, ruling, prohibiting, censoring, and uniform domination, but also positive, productive, and creative. It is exercised over free subjects, and only insofar as they are free".

People have power, no matter how limited it may be, to design and reconstruct their worlds to shape their future through critical reflection within education policy processes. The next section extends the examination of the notion of governmentality as a theoretical background to understand data as presented in Chapter 10 (and discussion in section 11.2 and Chapter 12).

4.3.3 Foucaultian approach to governmentality

This research examines power relations in schools in relation to state intervention through the introduction of environmental education. I deploy a genealogical approach in tracing issues of governance in environmental education policy and in terms of the conditions by which practices such as what Popkewitz and Brennan (1998) call 'site-based' management are constructed as plausible. Foucault argues that governmentality must include "a focus on the techniques of the self as well as the institutional technologies that perpetrate the art of government in ways that make it acceptable to the populace" (Popkewitz & Brennan, 1998: 21).

In this research, application of 'governmentality' focuses on the deeper historical context and on the broader power effects of government policy. This research provides an

analysis of how the Botswana environmental education policy operates following Foucault's analysis of the 'reason of state' focusing on what he identified as three axes for the modern deployment of power (Darier, 1999). These are:

- *institutional centralization* (e.g. of the Revised National Policy on Education development),
- the *emergence of new instrumental knowledge* (e.g. new subject knowledge with respect to the right attitudes, environmental ethos, and a cross curricular approach), and
- the *diffusion of power effects* across the entire social body focusing on these power effects (e.g. on teachers' decision making, reasoning and their own judgments of their competences and achievements).

These three axes of power are further explained in section 11.1.

Inda (2004) identifies three dimensions of government. The first dimension is the *reasons of government*. This dimension encompasses all those forms of knowledge, expertise, and calculation that render human beings thinkable in such a manner as to make them amenable to political programming. The second dimension is the *techniques of government*. The technical dimension is that domain of practical mechanisms, instruments, and programs through which authorities of various types seek to shape and instrumentalize human conduct. The final dimension is that of the *subjects of government*. This covers the diverse types of individual and collective identity that arise from and inform governmental activity.

For Foucault, power is not an essentially negative force; it can enable things to happen. Lechte (2003: 184) identifies areas in which power operates.

> - Power is … to be understood as dispersed. It becomes visible when there is resistance in society – when force meets force.
> - Secondly, law is not equivalent to order. A police state can maintain order. The law should rather concern itself with evidence and justice.
> - Thirdly, power is also internal to the subject, or indeed forms the subject. Power, knowledge and subjectivity thus go together; they are not alien to each other, as the humanist notion of power suggests.
> - Fourthly, power can be harnessed, or implemented, by any entity or group, as it is not something that can be possessed, but is a play of forces in a virtual network of forces. In this sense power is synthetic rather than analytical. It is from this that it deserves its positive and creative force…

The work of governmentality is concerned with the 'how' of governing. According to Dean (1999), governmentality is

> … concerned with how we govern and how we are governed, and with the relation between the government of ourselves, the government of others, and the government of the state. It thus resumes older and broader meanings of government and governing that are not necessarily tied to the nation-state and, in some ways, have become obscured by the rise of the liberal constitutional national state and its identification of government with *the* government, i.e. with the body that claims supreme authority within a given territory and its various apparatuses. It gives particular emphasis to issues of the government of human conduct in all contexts, by various authorities and agencies, invoking particular forms of truth, and using definite resources, means and techniques. (Dean, 1999: 2-3)

The 'how' of governing is also interdisciplinary, it has a profound influence on new work in and across disciplines as diverse as politics, sociology, economics, accounting, law, philosophy, the history of ideas, education and the history of the human sciences. It is characterized by its concreteness (Dean, 1999).

4.3.4 An analytics of government policy

According to Dean (1999) 'analytics of government' is concerned with an analysis of the specific conditions under which particular entities emerge, exist and change. It examines the conditions under which regimes of practices come into being, are maintained and are transformed. It seeks to attend to, rather than efface, the singularity of ways of governing and conducting ourselves. It does not treat particular practices of government as instances of ideal types and concepts. Neither does it regard them as effects of a law-like necessity or treat them as manifestations of fundamental contradiction. Dean (1999) continues to say,

> An analytics of government attempts to show that our taken-for-granted ways of doing things and how we think about and question them, are not entirely self-evident or necessary. An analytics of a particular regime of practices, at a minimum, seeks to identify the emergence of a particular regime, examine the multiple sources of the elements that constitute it, and follow the diverse processes and relations by which these elements are assembled into relatively stable forms of organization and institutional practice. It examines how such a

> regime gives rise to and depends upon particular forms of knowledge and how, as a consequence of this, it becomes the target of various programmes of reform and change. (Dean 1999: 21)

This research traces environmental education as a new regime of practice. It traces its emergence examining its multiples sources, key stakeholders, constitution and institutional practices. In the case of this research the state, through the Office of the President commissioned a review of the education system in Botswana. The executive and parliament approved the consolidated outcomes including recommendations to include environmental education as government policy (see chapter 6). In analyzing the regimes of government the researcher had to identify and examine specific situations in which the activity of governing comes to be called into question. This process involves questioning how authorities direct their own and others' conduct. In trying to understand what happens when governors govern and are governed, governors examine all that which is necessary to an education policy. Problematizations might thus equally concern how governors conduct government and how authorities govern conduct. Questions emerge as to how various education policy actors and authorities such as politicians, parents and professionals conduct themselves and how 'the governed' such as teachers and children conduct themselves (Dean, 1999). In the case of this education policy research, I examine the administrative structure, integration and coordination of environmental education; the forms of training of teachers and the expertise expected of them (see chapter 10), that is, how they are governed by the policy, and how they begin to self-govern around the new policy framework. In short, I examine the deployment of disciplinary power (see section 11.2). Problematizations seek to

> … understand how different locales are constituted as authoritative and powerful, how different agents are assembled with specific powers and how different domains are constituted as governable and administrable…. Power … is not a zero-sum game played within an *a priori* structural distribution. It is the (mobile and open) resultant of the loose and changing assemblage of governmental techniques, practices and relationalities. (Dean, 1999: 29)

This reflects a Foucaultian view that power is not fixed nor possessed, but rather that it circulates and is exercised in action. Power is exercised even by the governed that have

the space to resist what may be asymmetrically imposed upon them. The governed such as teachers in education may also employ some techniques of resistance to oppose curriculum innovations.

4.3.5 Governmentality in education

Governmentality in education operates at many places and sites such as through rules and regulations. It operates from multiple nodes of power (Agrawal, 2005; Foucault, 1979). In Botswana such nodes would include the Ministry of Education, departments, regional education officers, school heads, school management teams and heads of department, teachers, parents and teachers associations and learners. Power is exercised through administrative procedures that may facilitate a highly asymmetric flow of power. Within each site a microanalysis of power indicates that there is a disciplinary power exercised by individuals. Disciplinary power is the mechanism of power that frames the everyday lives of individuals placing under surveillance their everyday behaviour, identity, their activities, and gestures (Foucault, 1979). One of the sites of power effects within the education system is the examination. Examinations are one of the technologies of governmentality in education. Popkewitz and Brennan (1998 citing Hoskin, 1993: 277) argue that examinations lie at the heart of transformation, the new "calculable person is the result of the invention of marking; the new panoptical gaze of surveillance – plus judgment is the result of the new powers of writing plus – examination". Entrenched within the schooling system are regulations that are given effect through the introduction of practices of writing, grading and examinations. Learners and teachers quickly come to take it for granted that writing, grading and examination are normal practices dating back to time immemorial. Examinations as a surveillance and normalizing technique of power are explained in section 11.2.

Popkewitz and Brennan (1998) argue that the discipline of writing, oriented to a new principle of producing power/knowledge, has been central to the development of the modern world.

> This may suggest some reasons why education, both schooling and university sectors, exemplifying new forms of governmentality, exemplifying new

> strategies, tactics, and techniques of power to furnish what had become the major form of power relations defining institutions and universities, have become central to the 'disciplining' in most if not all other fields. (Popkewitz and Brennan (1998: 22)

Reforms in education do not occur in a vacuum, but are intricately connected to activity in other fields (see chapter 2). A subject such as Environmental Science can be a means of mobilizing particular discourses that alter the context, focus, and relations of teaching. According to Popkewitz and Brennan (1998) the subject in this context is the teacher who is subjected to particular reforms, the child who is constructed through marshaling particular discourses. Ball (1994: 124) observes that a teacher is looked at through various lenses in education, "ranging from innovative and competitive petit-professional to the harassed, reactive teaching technician." Noteworthy in this regard is the deconstruction and re-construction of the teaching body in terms of Foucault's notion of governmentality.

Popkewitz and Brennan (1998) point out that a certain relationship exists in what might be called the normative classroom, between speech and silence, and between speaking-positions. They continue to say

> Corresponding is one in which teachers speak and students listen; alternatively, students read and write, essentially in silence. This is also a relation between activity and passivity, with the teacher's active, directive role in the classroom economy to be contracted with the student's role, which is characteristically passive and reactive. Further, it is an also a relation between a relatively powerful minority and a relatively powerless majority, which arguably has a certain symbolic value not simply as a microcosm of social relations more generally but also as a model for such relations. That is, the classroom conceived in these terms becomes itself a representation of a certain form of social organization, and is also (re)productive in this regard. In such a situation, then, there is an important connection to be made between the teacher's "voice" and social power, and between speaking and authority. This admittedly schematic outline of the normative idea of the classroom has the further dimension that the teacher is institutionally charged with the introduction of students into socially authorized relations of knowledge and power, and differential access to the universe of discourse. (Popkewitz and Brennan, 1998: 177)

Popkewitz and Brennan (1998) rightly pointed out that what needs to be recognized is that, in every case, students are caught up in a particular relationship with a teacher, one

that is interactive, transactive, and negotiated, and characterized by a certain form of the expression of pedagogical authority. Pedagogical authority here is ultimately associated with authority, its promise, its achievement, and its supreme value, as well as its fragility. Ideally, the teacher is a person to whom learners turn with a sense of trust. Similarly an education officer is a person to whom teachers turn with a sense of trust. This form of power relations is a central feature in discursive practices and ensures governmentality in the education system. These forms of governmentality are further discussed in chapters 9 and 10.

Other techniques of power in education policy that create forms of governmentality include surveillance, normalization, classification, exclusion, distribution, individualization, totalization and regulation (Popkewitz and Brennan 1998) (see section 11.2). *Surveillance* regulates behavior, and enables comparisons to be made. Examples of surveillance include supervising, closely observing, watching, threatening to watch, or expecting to be watched (for example, in assessment practices). *Normalization* in education policy would include invoking, requiring, setting, or conforming to a standard – defining the normal. According to Darier (1999: 221) '*normalisation*' is

> … the process by which individuals are induced to internalize a given set of norms, world-view and expected conduct. Elsewhere, Foucault shows that the internalization of norms by each individual, and by the population in general, was a strategy adopted by the emerging modern European 'states' from the sixteenth century onward. Competing states required greater and more effective control of their population for military and economic reasons.

Exclusion is a technique for tracing the limits that will define difference, defining boundaries, setting zones. It marks the negative side of normalization. *Classification* is another common technique found within Foucault's elaboration of disciplinary power. Examples of classification include classification of knowledge, the ranking and classification of individuals and groups. Introducing environmental education changes the classification of knowledge traditionally used in schools. According to Popkewitz and Brennan (1998: 240), Foucault argues that the *distribution* of bodies in space – arranging, isolating, separating, ranking – contributes to the functioning of disciplinary power. For

example, teachers assigning rooms, physically moving bodies, requiring students to form groups, to students moving themselves or imploring others to do so.

Individualization involves giving individual character to oneself or another. It is a common technique of power in pedagogy, for instance using the word "I". According to Olssen, Codd and O'Neil (2004: 75)

> Individualizing forms of power are applied to subjects of state power to which it recognizes a special responsibility. This conception questions the unity of knowing and governing, and maintains that the rationality of the state can not be calculative and regulative of the totality, but instead seeks to situate political reason within a matrix of unstable individual-state relations.

Totalization, that is the specification of collectivities, giving collective character, forms a readily recognizable element of pedagogical activity. According to Popkewitz and Brennan (1998) sometimes totalization is achieved through simple linguistic structures, such as using the word "we". Olssen, Codd and O'Neil (2004) sees totalizing forms of powers as aimed at increasing the power of the state at the level of populations. "This reason of the state is based on a unity of knowing and governing, as embodied in the conception of the state as a *leviathan*, where all that was happening in a society could be known and maintained by the state" (Olssen, Codd and O'Neil (2004: 75).

In Foucault's view individualizing and totalizing have been identified as technologies for rule provided by classical liberalism. These are the modalities of power as suggested by a genealogy of the modern state distinguished in terms of the directions in relation to which power is exercised. *Regulation* involves controlling by rule, subjecting to restrictions, invoking a rule, including sanction, reward and punishment (Popkewitz and Brennan 1998: 243). Related to normalization techniques in governmentality is how power operates in practice. Taylor (2003: 88) observes that "power holders mould the way the rest of us think about what is and is not possible. Structures of power are accepted and internalized without question or even recognition".

4.3.6 Resistance and voice

Power relations may breed both resistance and compliance or normalization. Darier (1999) says, instead of 'liberation' Foucault preferred the term 'resistance' as he believed that there could not be 'liberation' in the absence of relations of power.

> The existence of a 'field of power' – and therefore of unbracketable relations of power – is the condition for resistance and ultimately the expression of human freedom. Freedom manifests itself through and because of relations of power and certainly not through their absence. In fact there cannot be relations of power unless the subjects are free (Foucault 1976: 12). What Foucault means is that some individuals or groups are able to resist, to challenge and to transgress the boundaries of their given identity/identities. For Foucault, resistance is the obvious manifestation of ultimate human freedom, a freedom grounded in context and in the practices of the transgression of limits, not an ontological and abstract freedom. For Foucault a person does not begin with liberty but with limit… (Darier, 1999: 221)

However, Popkewitz (1991) sees the concept 'resistance' as a structural concept that explores the diversity of responses to a world of unequal power relations, sometimes defining it as a dualistic world of those who dominate and those who are dominated. "As an empirical concept, resistance explores the ways in which power is sustained, bestowed, and challenged" (*ibid*: 235). A more recent version of resistance is found in the notion of voice containing dual agendas of interpretation and redressing social privilege. Voice is offered as a way to 'see' the relation of history, structures, and subjectivity (*ibid*). Popkewitz argues that "reclaiming of the suppressed voice privileges power as ownership and a presentism. There is a call for 'empowerment' that expresses power as sovereignty in that one can own, give, or take power" (Popkewitz, 1991: 236). Popkewitz is critiquing critical theory's assumption of power as sovereignty.

4.3.7 Fields of power

Knowledge is another foci related to power. Knowledge can liberate one from the repressive effects of power, though the two are intertwined. In this model power and knowledge are extrinsic to one another, for the epistemic status of knowledge is

determined independently of power. However, the Foucauldian view claims power to be operating anonymously or invisibly.

> The anonymity of this power ensures that each becomes his or her own disciplinarian, shaping and molding themselves to institutional exigencies. This, in turn, permits the extension of power to the smallest of social spaces. Disciplinary power thus requires and allows a control of each individual down to the least detail. This in addition, becomes the basis for the accumulation of a vast corpus of knowledge about individuals, further extending the effects of power. Knowledge here does not reflect a specific authority. It is an anonymous general knowledge of individual persons, which are the new subjects of power (Jacques, 1994: 101-2).

The Foucauldian view that power operates anonymously complements Horkheimer (1973) and Adorno's (1973) thesis of total administration and control. According to Foucault, surveillance, examination and control of persons gives rise to the individual subject - the individual is the product of disciplinary power and a possible object of knowledge. There is a shift from sovereign power (at macro level) to disciplinary power (at micro level). There is, therefore, a change in the nature of knowledge; a transition from a knowledge linked to authority to an impersonal knowledge of individuals. This reflects an alteration in the relationship between power and knowledge (Jacques, 1994). The power and knowledge of the sovereign are simply reconfirmed in the struggle with the teacher or student.

4.4 Summary

This chapter has provided a critical orientation to education policy deriving from theoretical (and methodological) insights on critical social theory, and more specifically from the work of Foucault, a post-structural critical theorist. "Central to such foci is a conception of policy as a political, socially and historically contextualized practice or set of practices" (Olssen, Codd & O'Neill, 2004: 3). The chapter has explored genealogy and theoretical concepts such as power, knowledge, discourse, governmentality within a post-structuralist perspective.

It emerged from this chapter that genealogy describes historical events, past contingencies which are the basis of present day practices and forms of knowledge. It traces the development to a contingent arrangement of forces due to power conflicts. These conflicts, once disclosed, unmask the purportedly neutral objective evaluations specific to present practices (Jacques, 1994). Interestingly Foucault does not make universal claims about the nature of power. As I mentioned earlier in section 4.1.9, Foucault does not give alternative directions, just as his critics do not offer an alternative history that might demonstrate the existence of a power-free evaluative point. He is opposed to universalisation of ideas and ideological discourses in his study of the history of the present. Foucault views power as circulation, not possessed or fixed. It is exercised even by those perceived powerless such as teachers in schools or learners in the classroom.

The central focus of Foucault's genealogical views, grounded in historiography, is power-knowledge relations and the concept of governmentality. Foucault identifies different kinds of power operating within policy discourse. Of great importance to this research are sovereign and disciplinary powers as postulated by Foucault. Disciplinary power is focused upon whom it is exercised, including those subjugated by power. An example of disciplinary power would be examinations in schools (see section 4.3.5 and 11.2). The literature also revealed three axes to modern deployment of power (Darier, 1999). These are institutional centralization, the emergence of new instrumental knowledge and the diffusion of power effects across the entire social body focusing on these power effects. These are explored further in section 11.1.

The next chapter concerns itself with data generation techniques framed within the broader critical social theory framework. It prepares for the data presentations in chapter 6 to 10. It also elaborates the framework for critical discourse analysis based upon a materialist theory of language, as used in this study.

CHAPTER 5
THE RESEARCH DESIGN AND METHODS

5.1 Introduction

Having considered the global environmental policy discourses, broad theoretical parameters of education policy development and a post-structuralist approach in critical policy analysis in the previous chapters, this chapter focuses on the research methods and techniques used in this research. Post-structural research emphasises method and epistemological matters concentrating on deconstruction, textuality, discourse, meaning and symbols leaning towards social criticism (Alvesson et al., 2000). Post-structural perspectives do not embrace the idea of developing a superior revealing insight or of finding a singular holistic meaning. They aim to strip a text of its external claim to authority. These perspectives are interested in problematizing discourses, their assumptions, rhetorical strategies and claims to authority to strive for multiplicity, variation, demonstration of inconsistencies and fragmentations. Therefore they avoid closure or following a monolithic logic and focus on inconsistencies, fragmentation, irony, self-reflection and pluralism (*ibid*).

This chapter describes how a post-structural framing has defined the research process and its design. It provides a descriptive analysis of methods used in this research and provides justification for the use of these techniques, their limitations, and discusses ways of ensuring data quality. It describes the research processes, that is, the data generation process, accessing of respondents and justification for their selection. The chapter covers methods of data generation such as document analysis, use of unstructured interviews, focus groups, the use of questionnaires and observations. It explains how data were analyzed during fieldwork and the post-fieldwork analysis. Modes of inference employed to analyze the data are briefly explained. It also describes validity and ethical positions in post-structural research, and how these have been considered in this study.

5.2 Post-structural policy research

Post-structuralism has been deployed in this research to enable analysis of the underlying assumptions in environmental education policy discourses. As indicated in chapter 4, the research draws on Foucault who was interested in how our participation in taken-for-granted practices keeps us subject to subtle forms of power (Janse van Rensburg & Lotz-Sisitka, 2000). Power and knowledge are central to this research. Post-structuralist perspectives view power in policy text being exercised through language causing participants to act or react. Post-structuralism is concerned with limitations of modernist ideals and practices. The approach to this research is within Foucault's genealogical perspectives, which is essentially a revealing of something begun in the past and continuing into the present. It is a revealing which clarifies the 'what-ness' of something always present, but unnoticed in its 'what-ness'(Bove, 1994). The techniques used in this research are carefully selected to enable post-structural analysis and to provide a deeper understanding of environmental education policy discourses.

5.3 Orientation to the research genre – design type

This chapter deals with methods that were used to generate data in an attempt to answer the research questions and achieve the research goals. The post-structural research orientation draws on qualitative data and analysis. The methods used to gather data and produce knowledge in phase one fall within the historical category (Gough, 1994). That includes review and analysis of historical records, documents and first person contact through individual and focus group interviews. In phase two, I undertook a critical discourse analysis of selected policy documents (e.g. policy document and subject syllabi of Social Studies, Environmental Sciences and Science) and complemented this analysis with data from focus group interviews and observations. These methods assisted in the description and analysis of the genealogy of environmental education policy and associated governmentalities at school level.

5.4 Research design and structure

To accomplish the research objectives I used rich qualitative research methods to generate and collect data as illustrated in table 5.1. Table 5.1 indicates the operational

plan in three phases of the research and the focus and methodology guiding the methods used for generating data, as well as the method of data analysis employed in each phase.

Table 5.1 Methods/techniques of data source and processing

Phases	Data type	Data source	Methods for generating data	Data analysis methods
PHASE 1 Investigating policy genesis (including both discursive and non-discursive practices)	Documents (historical records)	Ministry of Education, National Conservation Strategy Agency, National Reference Library, National Library, and National Archives	Document analysis involving review of historical records and documents	Deconstructive and inductive analysis to trace descent and emergence
	Information about policy initiation/formulation	Senior officers of the above organisations	Semi-structured interviews and focus groups	Inductive analysis
	Information about policy and policy initiation/formulation	NGO Officers	Semi-structured interviews	Inductive analysis
PHASE 2 Investigating policy interpretation	Information about policy interpretation/ implementation Field notes	Teachers	Semi-structured interviews of focus group, interviews and observations	Inductive analysis
PHASE 3 Investigating the relationships between policy genesis and interpretation	Inductive and deductive analysis of policy genesis and policy interpretations (phases 1 and 2)	All data used in phases 1 and 2	Use of analytic questions	Abductive analysis to re-interpret and recontextualize data presented in phase 1 and 2.

The details for data generation and analysis as illustrated in table 5.1 are described below.

5.5 Data generation and collection

5.5.1 Historical records and documents analysis

Historical records/documents sources have been used to extract relevant information for this research. Bell (1999: 108) divides documentary sources into primary and secondary sources. Primary sources are “those which came into existence in the period under research” and secondary sources are “interpretations of events of that period based on

primary sources". Both primary and secondary sources provided important information for phase one of this research. These sources assisted in the construction of the genealogy of environmental education policy in Botswana. Data included information drawn from government white papers on education policy, related policies, archival records, minutes of relevant authorities meetings, acts, letters, memoranda, circulars, conference proceedings and other documents relevant to the research topic (see tables 5.2 and 5.3). Access to most of these documents was negotiated prior to the start of data generation and collection.

Instead of directly observing or interviewing or asking someone to fill in a questionnaire for the purposes of the enquiry only, I used what Robson (1993: 272) calls an unobtrusive measure or non-reactive measure, "that is, the nature of the document is not affected by the fact that you are using it for the enquiry". I applied genealogy as a method to analyse policy documents including both text and context (discursive and non-discursive) within the post-structuralist framework. The research used 'inadvertent sources' "that is sources that are used by the researcher for some purpose other than that for which they were originally intended. They are produced by the processes of local and central government and from the everyday working of the education system" (Bell, 1999: 109-10).

Examples of such primary documents that I used were: records of legislature, government departments and local education authorities (such as letters and reports), national development plans, conferences proceedings and the minutes of working group and National Reference Group meetings. This research draws primarily on inadvertent sources as these are the more common and usually more valuable primary sources. They were produced for a contemporary practical purpose and therefore seemed to be more straightforward than deliberate sources. However, Bell (1999) warns that

> … great care still needs to be taken with them because it cannot be discounted that inadvertent documents were intended to deceive someone other than the researcher, or that what first appear to be inadvertent sources (some government records, for example) are actually attempts to justify actions to future generations … Some of the documents generated by a school for an inspection may have the aim of giving the best possible impression on the inspectors and the school might

not be so prolific in its production of policy statements or so up to date in its handbook if the inspection was not imminent.

The research analyzed documents to discover *witting* (original intention) and *unwitting* evidence (everything else from the original evidence) (Bell, 1999). It is from this evidence that the basis of examining policy implementation processes was formed. In this research witting evidence is treated as the information that the original author of the documents wanted to impart. Unwitting evidence is regarded as everything else that can be learned from the document. I accessed a number of documents in Botswana to examine how environmental education was conceptualized and integrated into the national education system. Table 5.2 below shows the documents I examined during data generation and collection in June to August 2005.

Table 5.2 Summary of policy and report documents examined

YEAR	NAME	AIM/ AND PURPOSE
1977	National Education Policy	Trace the genesis of environmental education
1989	National Conference on Education	Trace the genesis of environmental education
1990	National Policy on Natural Resources Conservation and Development	Trace the genesis of environmental education
1991	National Conference on Education	Trace the genesis of environmental education
1991	National Planning Conference on Environmental Education	Trace the genesis of environmental education
1992	National Report to the Earth summit	Trace the genesis of environmental education
1993	National Commission on Education report	Review the education system
1994	The Revised National Policy on Education	Provide a critical analysis of the inclusion of environmental education
1997	National Vision 2016	Trace the genesis of environmental education
2002	National report to WSSD	Trace the genesis of environmental education
2003	Environmental Education Guidelines	Provide a critical analysis of the inclusion of environmental education
2003	National Development Plan 9	Trace the genesis of environmental education
2004	Environmental Science syllabus for primary lower	Provide a critical analysis of the inclusion of environmental education
2006	Science syllabus for primary lower	Provide a critical analysis of the inclusion of environmental education
2006	Social Studies syllabus for upper primary	Provide a critical analysis of the inclusion of environmental education

Secondary sources of information include selected curriculum documents. I selected three subject syllabi (Science, Social Studies and Environmental Science) and the Environmental Education Guidelines for analysis (see chapter 8). The subject syllabi I selected were mentioned several times by teachers who claimed these subjects were related to environmental education. The purpose of reviewing and analysing these subject syllabi was to trace policy interpretations by policy makers, curriculum developers and teachers. I wanted to see whether their interpretations differ and why and where they differ. This was necessary to consider the question of governmentality in this research.

In addition to the documents shown in table 5.2 I managed to visit departmental libraries and resource centres and the offices of non-governmental organisations where I negotiated access to their records on matters related to environmental education. Table 5.3 below shows the organisations I visited in search of documents.

Table 5.3 Organisations visited

Date	Organisation visited	Purpose	Outcome
2–3 June 2005	Kalahari Conservation Society Offices (KCS)	To review information regarding Kalahari Conservation Society's influence on policy development	Letters and minutes
6–7 June 2005 1–2 August 2005	Department of Curriculum Development and Evaluation	Official reports and policy documents	Conference proceedings, correspondence and memos
9 June 2005	National Reference Library	Official reports and policy documents Previous research reports	Conference proceedings, reports, National Development Plan and Parliamentary debates records
13 June 2005	National Library	Official reports and policy documents Previous research reports	Conference proceedings, reports, National Development Plan (NDP) and Parliamentary debates records
1–2 August 2005	University of Botswana Library	Searching for March and April 1994 parliamentary debates document	Nothing except conference proceedings, reports, NDP and other Parliamentary debates records
2 August 2005	Department of Wildlife and National Parks Library	Searching for March and April 1994 parliamentary debates document and Association of Wildlife Clubs of Botswana records	Conferences' proceedings and reports

3 August 2005	Botswana Government Printer shop	Searching for March and April 1994 parliamentary debates document and Association of Wildlife Clubs of Botswana records	Nothing except the most recent reports
	National Archives	Searching for cabinet meeting minutes and March and April 1994 parliamentary debates document	Nothing
	National Assembly library	Searching for cabinet meeting minutes and March and April 1994 parliamentary debates document	Nothing
	Botswana Institute of Development and Policy (BIDP)	Searching for March and April 1994 parliamentary debates document	Nothing
3 August 2005	Botswana Government Printer	Searching for March and April 1994 parliamentary debates document	Nothing
8 August 2005	Somarelang Tikologo offices	Its contribution to environmental education policy processes	Conference proceedings and reports

Secondary sources of information have been criticized for several reasons including their availability. This may be the availability of source (documents) or information. For instance, in this research I could not find Cabinet Ministers' minutes and a parliamentary debates document, known as the *Hansard*, that approved the 1994 Revised National Policy on Education (RNPE) (see table 5.3 above). The documents were missing from all libraries in the capital city including the National Archives, National Reference Library and the National Assembly Library. This was discovered through review and analysis of the above mentioned conference proceedings. Secondly, secondary sources need to be used with caution as some may not be reliable. For instance official documents may be more valid and reliable than personal diaries (Kumar, 1999). However, this study did not use personal diaries, newspapers or magazines. As researcher, I am fairly confident that all sources accessed contained valid and reliable information. Robson (1993) argues that documentary sources have advantages, as data is permanent, can be re-analyzed, and allow reliability checks and replication.

5.5.2 Interviews

The second major method of data generation was through interviews with policy makers and policy implementers. The purpose of conducting interviews was to seek answers to research questions. The questions were semi-structured, that is I developed a framework (interview guide/schedule) to guide the interview (see appendix 5.1 and 5.2). A semi-structured interview guide was preferred as there were two sets of interviews conducted that is, one-to-one interviews and focus group interviews (see appendix 5.3). The method of data generation suited both individual and group interviews. An interview guide "is extremely useful in situations where … in-depth information is needed" (Kumar, 1999: 109) such as in this genealogical study. The other reason for using semi-structured interviews was "that the answers will be relevant to the researcher's interests" (Pring, 2000: 39) and for those interviewed to expound the full significance of their actions. Secondly, the interviews were meant to obtain important data that cannot be obtained from observation; to explore and probe participants' responses to gather more in-depth data about their experiences and feelings; and to examine attitudes, interests, feelings, concerns, and values more easily than using observation (Gay & Airasian, 2000).

The interviews were also meant "to draw out from the person interviewed the deeper significance of the event, so much so that it seems ever more difficult to generalise, to see this or that individual as simply an instance of generalization" (Pring, 2000: 39). However, this method has its associated challenges as it could be of interest only to those who are in that unique situation (Pring, 2000). Open-ended/semi-structured questions guided interviews with both individual officers and focus groups. Where the main questions were not clear or not fully answered it became apparent that follow-up questions were needed for clarity, to bring more insights into the discussion and to probe for deeper insights. Probing was used when participants did not address the topic of discussion or when a striking point was raised that needed further clarification. In some instances, some respondents started with what was in their minds and ultimately forgot the focus of the discussion. As a researcher I had to bring them back into more focused discussion. Some respondents went back and forth in the discussion and this caused

challenges, as I had to keep the discussion going in a clear direction without stifling or discouraging participants.

A variety of responses to a specific question caused some challenges in the data processing as I had to read the transcripts carefully and several times to identify the relevant categories of sentences, phrases and themes raised in discussions. It became even more cumbersome in focus group interviews where some respondents felt they should say something or comment after others had spoken. Based on this experience, I concur with Kumar (1999: 109), that "using an interview guide as a means of data collection requires much more skill on the part of the investigator than does using a structured interview".

Interviews in schools

To conduct interviews in schools I sent a letter to the Ministry of Education through the Office of the President in April 2005 (appendix 5.4) requesting for permission to conduct research. Permission was granted in June 2005 (appendix 5.5) stipulating that the research should not interfere with normal teaching activities. To get access to the schools and organize focus groups, I sent another letter to school heads (appendix 5.6) explaining the purpose of the research and requested volunteers to participate in focus groups discussions. This was followed up with telephone calls to confirm my schedule and to ensure that school heads had received my letters and that they had managed to get volunteers for the focus group discussions and to complete the questionnaire.

To participate in the groups discussions, Head Teachers approached participants (see appendix 5.7). The choice of approaching school heads in the first instance was based on observation of protocol. That is, as an outsider, I could not approach the teachers without the school heads' sanction and knowledge. The turn-out for the focus group interviews was satisfactory. I also based the initial approach on the assumption the school heads command respect in the school, and I hoped that teachers would realize the significance of the study if officially approached by school heads. At the time I subscribed to Taylor and Bogdan's (1998: 88) idea that as an outsider/researcher you

> Look for a person who is recognized, trusted, and respected. If appropriate, ask the chief executive, the block leader, or the head nurse to make initial contacts. You do not want potential participants to feel coerced – like they can't say 'no' to this person. But often people feel this study must be really important if this person is taking time to invite them to do this. We have had people tell us it was an honor to be invited by a certain person. Also participants are more likely to show up if they have said yes to this person they trust and respect.

In other schools some teachers who had agreed to participate withdrew on the day of the interviews. Some gave reasons, while some simply did not show up.

I carefully planned the time for the interviews and I used the afternoons so that there would be no conflict with teaching activities or core functions of the school. I conducted the research before many schools start end of year examinations. The interviews were limited to an hour for both the discussions the questionnaire. This was observed throughout the sites, although at times it took longer than planned, depending on how the participants responded.

For classroom observations, I visited schools to meet school heads and teachers to negotiate to conduct the observations. Most of the teachers agreed to be observed. Those who declined gave a variety of reasons such as 'still familiarizing themselves with learners' as it was the beginning of the year and the pupils were new. Some feared that their pupils are likely to disappoint them as they were slow in learning new concepts while some were simply not comfortable with observation.

Data generated from interviews assisted in the genealogical analysis of environmental education policy and provided insights into how power/knowledge relationships played a major role in influencing policy interpretation and implementation. The use of Foucault's concept of governmentality as a lens in policy process analysis proved a valuable working tool in this research. The presentation and discussion of data generated through interviews is provided in chapters 9 and 10.

Interviews with policy designers

For the individual interviews with policy designers, I contacted interviewees by telephone, first making appointments with them. I explained what the research was all about. All the respondents agreed to be interviewed at their convenient times. Interviews were conducted either at the respondents' offices or homes. The interviews took about 45 minutes each on average. A list of all individuals interviewed is provided in appendix 5.1. I interviewed senior officers who are either currently in senior positions in the Ministry of Education, or who were in influential senior positions during the formulation of the RNPE, or who were officials within the NGOs that played a major role in influencing the incorporation of environmental education into educational policy. The choice of these key role players was also influenced by their participation in the 1991 Environmental Education Planning Conference and the 1992 National Commission on Education (see chapter 6). Their names were selected from publications associated with this major event, and they were traced through either telephone or by asking those working within the relevant organisations. Some were identified during interviews as other interviewees kept mentioning their names. They were chosen because they were thought to be knowledgeable about the research topic. Interviews are a very important means of obtaining information in qualitative research that cannot be otherwise obtained through observation or document analysis.

I used interviews to explore and probe respondents' responses, views, experiences and interpretations of policy texts to establish their intentions and understandings of the environmental education policy, its construction and interpretation. Gay and Airasian (2000: 219) describe interviewing as "a joint construction of meaning between the researcher and the participant, not just a construction of the participant". I interviewed informants from the education sector concerning the development of environmental education policy and its interpretation. As observed by Pring (2000: 39),

> Typically the researcher, in seeking answers to certain questions, will structure the interview so that the answers will be relevant to the researcher's interests. But the interview will normally be only semi-structured because otherwise there would not be the scope for those interviewed to expound the full significance of

> their actions. …The individual's consciousness and intentions are the significant factors in explaining why things happen as they do.

I respected the significance of what was being said during the interview by the interviewee. I used semi-structured interviews to create space for free discussions and to widen the scope of answers provided as well as to address any questions of validity (see section 5.8 and 5.9).

I used a tape recorder in all the interviews after getting permission from the interviewees. This method of recording data seemed to be convenient as the researcher has to concentrate on eliciting the responses without losing what is being said while taking notes. It is also less time consuming as one can sustain the interview session without pausing for note taking. It further enables the researcher to transcribe accurately what has been said later. May (2001) argues that tape recording can also make the analyst complacent where it is taken that once the data are collected, most of the work is done. The technique also has a disadvantage as it is labeled as intrusive. As Scott and Usher (1999: 110) explain

> If a tape recorder or video camera is used, this will affect the degree and type of privacy experienced by the interviewee and may breach the public – private dimension of the exchange as it is understood by the person being interviewed. Again, this acts as a structuring device, as the use of a recording instrument signal that the data are public and therefore subject to the rules which structure public discourse.

The individual interviews were successful and friendly. Some respondents who initially seemed uncomfortable ended by opening up and sharing their experiences. The quality of interviews was not uniform as each was influenced by the context, level of respondent's understanding, experiences and their willingness to share ideas. Some could not remember exactly what happened over ten years ago when the policy was formulated. I have appended two interview summary transcripts that have been member-checked and verified (see appendix 5.8 and 5.9). A detailed presentation of interview results is contained in chapter 9.

Focus group interviews

To complement information obtained through document analysis and interviews in phase one I used *focus group* interviews in schools (Kruger & Casey, 2000; De Vos *et al.* 1998). The purpose of conducting a focus group interview was to listen and gather information about environmental education policy. Focus groups bring several people together to share their thoughts and their experiences and to reach some kind of consensus about the topic of research (Bless & Higgson-Smith, 1995). The focus group is an important method because it promotes self-disclosure among participants and enables the researcher to inductively know what people really think and feel and creates a comfortable and permissive environment. Kruger and Casey (2000: 24) suggest interviewing "three to four focus groups as the next sessions elicit very little, if any new information, signaling that the research has reached saturation". This view is shared by De Vos *et al.* (1998: 315) who assert that "the first two sessions with a particular group generate a substantial amount of new information, but the third and fourth sessions elicit very little, if any new information". This was not observed in this research in which I interviewed seven groups of respondents from four education regions out of the twelve regions.

The interviewees were teachers from lower and upper primary classes in five schools. The groups consisted of similar participants, that is people with similar qualifications, senior teachers or teaching at the same level. As Kruger and Casey warn (2000: 27), I avoided "mixing people who may feel they have different levels of expertise or power related to the issue". There were two main reasons for this approach. One was to ensure that interviewees feel they were in a safe comfortable place with people like themselves. The second reason was to identify trends and patterns through the creation of a permissive environment (Kruger & Casey, 2000). The focus groups were used in generating qualitative data that is words, categorizations and expressions that were used by the participants themselves. To ensure full written records of what was said during the interviews and to ensure that everyone's comments were noted, focus group discussions were tape-recorded. Group members were informed at the outset that the discussions would be tape-recorded. All the respondents agreed to be tape-recorded. This made data

collection easy for me as I managed to concentrate on discussions noting only a few important points. A systematic analysis of these data provided clues and insights as to how the policy is interpreted and implemented (see chapter 10).

I had groups of the respondents who had training in environmental education at their colleges, those who had attended training workshops, as well as those who had never attended any training together. Another aspect considered was that of participants having similar academic qualifications or power (in this case, authority). These arrangements created an interview environment where all participants felt comfortable in saying what they think or feel about environmental education policy. This arrangement was made in taking into account the fact that "If there is power differential, some participants may be reluctant to talk"(Kruger & Casey 2000: 27).

The questions were in English, which is the second teaching language in schools. Apart from English being used as a medium of instruction, policy documents and syllabi are written in English. It was evident that some participants were not fluent in English and were not able to express themselves clearly. This brought some challenges, as the respondents were not able to articulate in-depth perspectives in English. Some respondents reverted to using their first language which I understood very well as it is also my first language. Although this was not planned I did not discourage it as I appreciated that the respondents were volunteering information that I needed and I had no problem with interpreting the local language into English.

Power relations during interviews

The interviews were conducted to generate qualitative data from both policy makers and policy implementers. Data generated from policy makers were based on the origins of environmental education policy discourse and why and how it was initiated. Most of the respondents were people that I had interacted with at different forums or as colleagues in the past. Although some had now been promoted to higher positions the interview was balanced. I did not feel any imposition of their power or authority or any feeling of being 'demeaned' by them providing an interview to a person of my status and power.

Moreover, they were not intimidated by the use of a tape recorder and freely gave information based on their experiences or what the policy was meant to achieve. However, those who are still working for the Government seemed to be more careful and "more guarded in what they say, wrapping this up in well chosen, articulate phrases" (Cohen, Manion, & Morrison, 2000: 122). Cohen, Manion and Morrison (2000: 123) warn that "interviewers need to be aware of the potentially distorting effects of power, a significant feature of critical theory...". Power relations within the focus groups were not explicitly experienced as a constraint. Teachers respected each others' point of views creating an enabling situation for everyone to express their opinions and share experiences. However, disciplinary power was implicitly exercised as teachers were careful when explaining their competencies. They did not claim ignorance of policy obligations or environmental content (see chapter 10).

5.5.3 Use of questionnaires

I used a questionnaire (appendix 5.10) to complement data generated through focus group discussions. The framework for the questionnaire used in this study was adapted from the South African National Environmental Education Project for General Education and Training (NEEP-GET) Pilot Research Report (Lotz-Sisitka & Raven, 2001). A questionnaire was not posted but distributed to focus group members after an explanation immediately after focus group discussions. The purpose of the questionnaire was to generate school profile data relating to environmental education practices as well as data on teachers' personal and professional contexts and roles and their views on policy implementation. The questionnaire also gave the respondents an opportunity to say what they were not able to articulate during the focus group discussion. The questionnaire proved to be a valuable tool for triangulating data generated through the focus group discussions.

I administered the questionnaire immediately following the focus group discussions. This proved effective as most of the questions were answered except those relating to personal details (e.g. age, name and professional qualifications), which were voluntary. It also

reduced the possibility of respondents consulting others on questions and I received independent responses from all respondents.

The questionnaire was anonymous and the questions were open-ended. It was left anonymous to give the respondents the opportunity to feel free and openly give information in response to the questions. Moreover, it was meant to gather what teachers could immediately think of or remember. The questions were framed in such a way that they progressively followed each other and enabled some of the data generated during focus group discussions to be triangulated. However, open-ended questionnaires have both strengths and weaknesses. To complement and triangulate data generated from interviews and a questionnaire, I did some observations.

5.5.4 Observations

In addition to observing interviewees, I also used observation as a method of gathering primary data from schools. I was a passive observer, which is watching and listening to activities and drawing conclusions. According to Kumar (1999: 105)

> Observation is one way to collect primary data. Observation is a purposeful, systematic and selective way of watching and listening to an interaction or phenomenon as it takes place. … It is also appropriate in situations where full and/or accurate information cannot be elicited by questioning, because respondents either are not co-operative or are unaware of the answers because it is difficult for them to detach themselves from the interaction. In summary, when you are more interested in the behaviour than in the perceptions of individuals, or when subjects are so involved in the interaction that they are unable to provide objective information about it, observation is the best approach to collect the required information.

School and classroom observations were negotiated through the school heads. My preferences were teachers that I had discussions with in focus groups. However, I had three volunteers who were not part of the focus groups. I had an informal discussion with school heads about the policy and environmental education and some were even willing to take me around the school to observe their environmental education related efforts.

In addition to the general school observation I managed to observe seven teachers in their classroom settings. I did the observation to verify and validate data from the focus group discussions, questionnaires and from informal discussions with school heads. I also wanted to get additional information concerning pedagogical practices in class. I asked for permission to take pictures of learners in their group work activities and outdoor learning activities.

Observation of lessons was not an unfamiliar experience to me as a teacher and teacher educator. I took heed of advice from Wilkinson (2000):

> Once the observations have been arranged it is important that none of this valuable time is lost. Observing a class as researcher can be difficult for many teachers-turned-researchers, since it is difficult to suppress prior assumptions and make the scene of the research exotic enough to be able to concentrate on a classroom observation as intently as one might do in a less familiar place. (Wilkinson, 2000: 125)

The recording of the lesson observations was done narratively that is I recorded the descriptions of the interaction in class in my own words making brief notes while observing. Soon after the class I made detailed notes in the narrative form to provide a deeper insight into the interaction (see appendices 11A and B). I tried to balance observation and recording although I cannot guarantee that I did not miss part of the interaction.

The observations were restricted to one lesson per teacher. The lessons observed were Science, Social Studies and Environmental Science. I think teachers preferred to be observed teaching these subjects because they include many topics on the environment (see chapter 8). Therefore it was easy for them to teach without struggling to infuse or integrate environmental education. What I noticed during observation was that pupils were aware of my presence and this could have influenced their reaction to the lesson. It was difficult for them not to keep looking at me. However, they actively participated during the lessons. I feel this is normal in lesson observations even if the learners know the observer very well there will be some degree of disruption during observation.

5.6 Data analysis

In this research I provide an analysis of secondary and primary data sources. Secondary data sources include the 1994 Revised National Policy on Education on environmental education, related environmental policies, official correspondence, conference proceedings and selected curriculum documents (see chapters 6, 7 and 8). Primary data generated through interviews with policy makers to extend the construction of the policy genealogy was processed and an analysis provided in chapter 9. Focus group interviews, observations and questionnaire data are analysed (see chapter 10) to provide an understanding of governmentality as it has arisen in relation to the Botswana environmental education policy. Both the genealogical and governmentality analysis assisted in providing answers to the research questions. Data analysis was done to find answers to the questions and to make sense of the information collected (Kumar, 1999). To ensure reliability and validity in my analysis I avoided selective use of data, that is avoiding or neglecting the negative or positive data (Cohen, Manion & Morrison, 2000). I also actively aimed to reduce "the halo effect, where the researcher's knowledge of the person or knowledge of the other data about the person or situation exerts an influence on subsequent judgments" (Cohen, Manion & Morrison, 2000: 117). Several types of categories used to critically analyse data were drawn from the questions, documents and interview responses. These focused on values, goals or intentions revealed, methods used to achieve intentions, actors represented to carry out the actions referred to, in whose name are statements made, the sources and levels of conflict and ways conflicts are resolved (Robson, 1993). The analysis revealed power relations in environmental education policy discourses (see chapter 10 and 11).

Interviews were critically analyzed in phase two using qualitative methods. Data analysis was

> … ongoing, accompanying the collection of data. The reflective section of the field notes constitutes part of the process of the field analysis. The purpose of analyzing data in the field is to discover categories and underlying themes … on-going analysis should be kept to a minimum – enough to give data collection a direction and focus and identify gaps. … Formal analysis of data is done after the fieldwork period. Analysis at this level includes developing coding categories as a way of organizing the data. (Mwiria & Wamahiu, 1995: 127)

Data were analyzed qualitatively to produce a genealogy of environmental education policy and to establish effects of power relations in policy interpretation and implementation in Botswana schools. To deepen this analysis, documents were subjected to critical discourse analysis (section 5.6.2 and chapters 7 and 8). Inductive and abductive modes of inference were applied to the organization and analysis of data (see section 5.6.3 and chapter 11 to 12). The process of organizing and analyzing data is described below.

5.6.1 Data processing and analysis

The process of data analysis involved organizing and preparing the data for analysis. Table 5.4 provides a summary of the phases and types of qualitative data analysis.

Table 5.4 Summary of phases and types of qualitative data analysis

PHASES OF ANALYSIS			
Types of analysis	Phase 1: Orientation to the data	Phase 2: Continue working on data	Phase 3: Final composition of the analyzed data text (verbal)
Content analysis	Reading or studying data sets to form overview and to apprehend the context (within the data text).	Coding segments of meaning. Categorizing related codes into groups. Seeking relationships between categories to form thematic patterns.	Writing the final themes of the set of data. Presenting pattern of related themes.
Discourse analysis	Sets of texts are read and analysis procedures are identified e.g. socially constructed units of meaning in written texts.	For discourse analysis relevant language markers in the text are identified and relationships with the rest of the text are sought.	The discursively marked themes are collated and discussed. The discourse is interpreted, showing how the discourse itself impacted on the making of the text's content.

After Henning, 2004.

Documents analysis focused on *content* analysis. This was guided by the research questions. It involved extracting the relevant text and analyzing it. Theoretical categories were generated based on the research question to guide the extraction of relevant information from the documents. As the intention was to construct a genealogy of environmental education I concentrated initially

> … upon what the author intended when they produced the document; the meaning given to it by the potential audience (including the analyst who, by an act of reading, is part of that audience and thus needs to act reflexively) and finally, between these two, the text itself which the content analysts and semioticians concentrate upon (May, 2001: 193).

To complement this process, the secondary document content analysis was supported by other secondary sources to understand the context (social context) of text production (as in chapter 6). Some secondary data are subjected to critical discourse analysis in chapters 7 and 8. The purpose of subjecting selected data to a critical discourse analysis was to elicit a deeper understanding of policy genealogy, governmentality and interpretation. (see section 5.5.2). Moreover, critical discourse analysis of secondary data assisted in verifying and providing further insights to data generated through questionnaires and interviews that were inductively analyzed.

Content analysis

Primary data processing and analysis involved transcribing interviews, typing up field notes, sorting and arranging the data into different types depending on the sources of information (Creswell, 2003). The process started while I was in the field collecting data. Each day after the interviews I wrote my *field notes* in detail and listened to the tapes to familiarize myself with all the voices and ensure that there were all well recorded (audible). I also processed questionnaire data according to the questions at the end of each day. By the time focus group interviews were finished I had also completed putting together the questionnaire data.

After data generation I started the process of transcribing the tapes. I carefully listened to the interview, and typed the responses verbatim including interruptions (inter), pauses (p), repetitions (rep), nmhhs, intonations (hesitations) and other verbal sounds (…). This was an intensive process that took me some weeks with over 17 tapes. Each tape of 30 minutes required four to seven hours of transcription. Reading each transcript carefully and replaying the tapes to verify the transcripts followed this. This process was repeated several times as each time I discovered that I had missed a few words and some statements were not clear.

Reading the transcripts several times to organize and prepare them for respondent verification followed the transcription process. This involved removing interruptions, pauses, repetitions, nmhhs, intonations and other verbal sounds so that they were more readable. The purpose of processing data was "to ensure that data are 'clean', i.e. free from inconsistencies and incompleteness" (Kumar 1999: 200). This was done through thorough editing. The transcripts were sent to the respondents for verification and most of them responded immediately either with further comments or confirmation of what was transcribed (see appendix 5.8 and 5.9).

The next stage involved careful reading of the transcripts and field notes several times, a process of familiarizing myself with the data. I did not use any computer software but relied on ideas from literature and my research experience. I preferred the data coding system and the coding was done manually. All the research respondents and focus groups were allocated codes. The second coding centered on all core questions and follow-up questions. Codes were initially a combination of letters and numbers. Table 5.5 provides a summary of the content analysis process.

Table 5.5 Stages in data analysis

STAGES	STAGES OF QUALITATIVE CONTENT ANALYSIS	MODES OF INFERENCES
1	Determine analytic categories drawing on the research question from the data generated (field notes, transcripts, etc.).	Inductive and abductive process
2	Read through the data and establish categories.	Induction process
3	Determine systematic criteria of selection for sorting data chunks and categories.	Inductive process
4	Begin sorting the data into the various categories (revise categories or selection criteria, if necessary, after several cases have been completed).	Inductive process
5	Review textual materials as sorted into various categories seeking patterns.	Inductive process
6	Re-consider the patterns in the light of relevant literature and/or theory (show possible links to theory or other research). Offer an explanation (analysis) for your findings. Relate your analysis to the literature of the subject.	Inductive and abductive process

After Berg (2004: 286).

After re-reading data carefully, that is field notes, documents and transcriptions, I grouped all data according to questions and follow-up questions. I then read through the data carefully several times. Coding by interview questions was not possible with a homogeneous coding framework as at times the questions were rephrased to facilitate understanding and to focus the study. Coding, re-coding, replacing, shifting and transferring data from one theme to another characterized the focus of analysis. A careful reading of the data led to re-grouping of thematic categories. I also read through the field notes jotting down what seemed on the surface to be relevant questions and category labels for sorting the data. Throughout this process I ensured "that the categories should have some relationship with the research question and should not simply be random words that seem to occur with some regular frequency" (Berg, 2004: 285).

Another careful reading led to further refinement of categories. This process is explained in section 5.5.3 as induction and abduction. These processes lead to final codes emerging to form patterns and categories of data (see appendix 5.12). The main criteria guiding the refinement of the categories were the research questions and the common discourses emerging. The idea here was to offer some explicit definition or coding rules for each category (Berg, 2004). Once the categories were refined, I sorted the data accordingly, color-coding for easy differentiation. This according to Newman (200: 422)

> … helps the researchers see the emerging themes at a glance ii) it stimulates the researcher to find themes in future open coding, iii) the researcher uses the list to build a universe of all themes in the study, which he or she recognizes, sorts, combines, discards, or extends in further details.

After most of the data had been categorized and described in this inductive analysis, I began the process of interpreting and explaining it, making reference to literature where appropriate. As Berg (2004: 287)

> … you must consult the literature and consider your pattern findings in the light of previous research and existing theory. Do your findings confirm previous similar research? Do they contradict previous studies? How can you explain these differences or similarities? As you begin to consider answers to these sorts of questions, you should also begin to see that you are conducting analysis.

This led to a mapping out of the patterns in the data in relation to the theoretical underpinnings, which constituted an abductive process of analysis (see section 5.5.3). This also necessitated further reference to the research questions to verify the relevance of data and theory. I also retained the initial codes as I shifted and re-grouped data to be able to trace the origin of data for the purpose of quoting to allow for a "data trail" to enhance validity and trustworthiness of the inferences.

In general the process of processing, organizing and analyzing both primary and secondary data enabled me to construct the education policy genealogy and establish where power relations play out in policy interpretation and implementation. The method of reading transcripts several times to identify common or different outcomes enabled me to group ideas that are similar and identify emerging features that are not shared across the cases but which add value to the research outcome. The method also enabled me to establish the causal factors of the common or different outcomes across the research sites and context. In writing up the thesis I tried to represent the data as much as possible avoiding broad generalizations as these may compromise theoretical exceptions (Neuman, 2000).

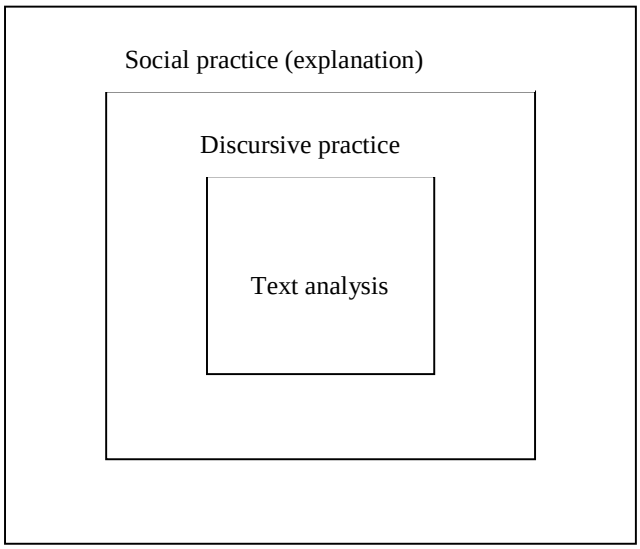
5.6.2 Data processing and analysis: critical discourse analysis

As indicated above, I subjected some policy documents to Critical Discourse Analysis (CDA) drawing on Fairclough's model (1992) as used by Janks (1997). Critical Discourse Analysis is fundamentally interested in analysing opaque as well as transparent structural relationships of dominance, discrimination, power and control as manifested in language. It aims to critically investigate social inequality as it is expressed, constituted and legitimized by language use or in discourse (Martin & Wodak, 2003). In addition CDA "is concerned with the ways in which the power relations produced by discourse are maintained and/or challenged through texts and the practices which affect their production, reception and dissemination" (Locke, 2004: 38).

I organised data from documents for analysis focusing on three dimensions: the text, discursive and social practice (figure 5.1). The analysis focused on properties of texts,

notably “the production, distribution, and consumption of texts, socio-cognitive processes of producing and interpreting texts, social practice in various institutions, the relationship of social practice to power relations, and hegemonic projects at the societal level” (Fairclough, 1992: 226). In accordance with the goals of this research, the analysis focused on education policy change incorporating environmental education. I used critical discourse analysis to describe, interpret, analyze and critique social life reflected in policy texts. CDA is concerned with studying and analyzing written texts and spoken words to reveal the discursive sources of power, dominance, inequality, bias and how these sources are initiated, maintained, reproduced, and transformed within specific social, economic, political, and historical contexts. It tries to illuminate ways in which the dominant forces in a society construct versions of reality that favor their interests (McGregor, 2003).

Figure 5.1 Three dimensional conception of discourse



Adapted from Janks (1992: 73).

I used CDA because it “provides multiple points of entry” (Janks, 1997: 329). That is, analysis can start from analysis of discourse practices, analysis of texts, or analysis of social practice of which the discourse is a part, that is from interpretation to description

and back to interpretation: from interpretation of the discourse practice (processes of text production and consumption), to description of the text, to interpretation of both of these in the light of the social practice in which the discourse is embedded (Fairclough, 1992).

The critical discourse analysis focused on discourse practice, discourse as text and social practice (see figure 5.1). This analysis is detailed in chapters 7 and 8. This approach is complementary to Foucault's discourse analysis, which is concerned mainly with the social and political analysis of discursive practices as systems of rules, rather than with textual analysis of real instances of what is said or written, that is with the analysis of actual texts (Fairclough, 1992). I found this framework (figure 5.1) to be useful for analyzing the discourses of educational policy. It provides, in particular, a basis for the recognition of different *discourse types* and explains why language is politically important in struggles over education policy. Critical discourse analysis assists in 'denaturalizing' policy text by showing how the representation within texts mask the sources of their status and authority and offers "the possibility of alternative readings and interpretations, particularly those silenced by dominant social institutions that tend to privilege a particular analysis, reading position, or practice as official knowledge" (Luke 1995: 19). It also reveals how texts define, position and control readers and listeners (Fairclough, 1992: 70).

Critical discourse analysis is very difficult to apply to large corpus of texts. I therefore selected specific statements from the *Revised National Policy on Education* dealing with environmental education for analysis in chapter 7. I also selected four curriculum documents for analysis in chapter 8. The documents are *Environmental Education Guidelines,* Environmental Science, Science and Social Studies syllabi. The *Environmental Education Guidelines* document was selected for analysis as it was a reference document for the infusion of environmental education into the national curriculum. Environmental Science, Science and Social Studies syllabi were selected because I had observed lessons in these subjects. I did not carry out a detailed language analysis of the kind critical discourse analysis offers because that was not the purpose of this research. A post-structural mode of analysis emphasizes discourse rather than

language. It is concerned with the meaning and value producing practices in language rather than the relationship between utterances and their referents (Shapiro, 2001). It is historical emphasizing the events through which environmental education has found its way into the policy text. In analyzing the subject syllabi I concentrated on their general and specific objectives (see chapter 8). I used critical discourse analysis to complement and enrich genealogical analysis, which I started with content and text production description in chapter 6 as this enabled a deeper probing to establish the basis of power relations in policy processes.

5.6.3 Modes of inference in data processing and analysis

Modes of inference used in analyzing data in social science research may include deduction, induction, abduction and retroduction (see table 5.3). Danermark, Jakobsen and Karlsson (2002) describe inferences as logical preconditions of scientific reasoning and are thus the core of the scientific method. Inferences are descriptions of various procedures and ways of reasoning and arguing which are applied when the particular is related to the general. Reasoning, our ability to analyze, abstract, relate, interpret and draw conclusions is a fundamental precondition for all knowledge and knowledge development. It is difficult to draw a distinct line between these four modes of inference in data analysis as they are closely linked and complementary.

Deduction refers to inference where conclusions follow in a strictly logical way from given statements (i.e. premises). Arguments are substantiated with various assertions and observations. Deductive logic provides rules for what is a logically valid conclusion based on given statements. However, deduction does not tell us anything new about reality beyond what is already in the statements. Deductive conclusions are analytical conclusions. That is

> … validity of the conclusions is dependent on our following the logical rules for deduction, independently of what reality is like. In analytical inference the conclusion is implicit in the premises. This means that it does not give us any guidance on how we, from observing particular phenomena, can gain knowledge of the abstract structures and mechanisms that make these phenomena possible (Danermark, Jakobsen & Karlsson, 2002: 84).

I found inductive and abductive modes of inference more relevant to the post-structural orientation of this study. Danermark, Jakobsen and Karlsson, (2002) discuss ***induction*** as inference conclusions that entail addition of new knowledge beyond what is in the statements/premises. The induction process starts from something known and given and draws new conclusions which reach beyond this.

> Inductive inference implies that from a number of observations of individual phenomena we draw general conclusions assumed to be true of a larger number of phenomena that those we have observed. Inductive inference can be a generalization over time and also of a larger population (Danermark, Jakobsen & Karlsson, 2002: 85).

Inductive inferences were made when organizing and analyzing interviews, documents and observation data in this research. For instance, when students were observed always standing up when answering questions or raising their hands to answer or ask questions. An inductive inference here would be related to disciplinary power as schools operate on regulations that are not repeated each time a reaction is expected, but are normalized in schooling discourses. Inductive conclusions raise questions of uncertainty about the inferences. Secondly there is a risk of drawing wrong conclusions although the premises are true, constituting an internal limitation. Lastly, there are external limitations to inductive inference regarding the knowledge that cannot be reached with induction. That is, we will never be certain that what is observed is true also of the unobserved occurrences.

A third mode of inference applied in this critical post-structural research is ***abduction.*** An abductive mode of inference encompasses a defined logical form comparable to induction and deduction, and on the other hand offers a more in-depth perception of reality. Abduction involves redescription or recontextualization of the statements. It encompasses ways of reasoning, thinking and arguing in a wider sense. Abduction provides a type of knowledge that cannot be acquired either through deduction or inductive generalizations. Abduction is essentially applied in policy analysis to gain a deeper knowledge of social meanings, power structures and mechanisms (see appendix 5.13). This mode of analysis was critically applied in presenting data results following rigorous coding and recoding to

gain a deeper understanding of the premises as generated from the respondents, and through recontextualizing these in relation to theoretical perspectives in genealogy and governmentality as outlined in chapter 4.

5.7 Quality in qualitative post-structural research

Post-structural analysis aims at discovering the actual patterns not invented patterns, or patterns that cannot be replicated and found again by another researcher. An initial process of ensuring quality was through the conduct of piloting of the research instruments in early June 2005 in preparation for data generation activities in July 2005. The results of this piloting are not described in document, but were simply incorporated into the data generation process. It was through piloting of instruments that the interview guide and research questionnaire were revised for quality and reliability (see Janse van Rensburg, 2001). I used *face and content validity* of the instruments to ensure the link between the questions and objectives of the research. However, this type of validity has been criticized for problems that may arise. For instance, Kumar (1999: 139) pinpoints two problems associated with face and content validity.

- The judgment is based upon subjective logic hence no definite conclusions can be drawn. Different people may have different opinions about the face and content validity of the instrument.
- The extent to which questions reflect the objectives of a study may differ. If the researcher substitutes one question for another, the magnitude of the link may be altered. Hence, the validity or its extent may vary with the questions selected for an instrument.

My particular concern was with the factual accuracy of my account to ensure that what I record, transcribe or hear is exactly as obtained from the informant(s), that is, true to the respondents. Cohen, Manion and Morrison (2000: 106) noted that "it is the meaning that subjects give to data and inferences drawn from the data that are important". For *validity and trustworthiness*, I also tried to ensure *descriptive validity* by paying particular attention to what Maxwell (1992: 287) refers to as ''issues of omission as well as of commission'' acknowledging that ''no account can include everything''. However, I ensured that accounts were accurate and constructs were those presented by the

respondents. Transcripts of the interviews were shared with participants for validation. Transcribed texts were checked by interviewees for verification, editing and for additional comment. I used what Creswell (2003) called *'member-checking'* to determine the accuracy of the qualitative findings by taking final transcripts back to participants to determine whether these participants felt they were accurate (see appendix 5.8 and 5.9).

My interpretation of interview accounts relied as much as possible on the participants' own words and concepts (*interpretive validity*). However, I took note of what Maxwell (1992: 290) intimated when he concluded that

> The development of accounts of these participants' meanings is usually based to a large extent on the participant's own accounts, but it is essential not to treat these latter accounts as incorrigible; participants may be unaware of their own feelings or views, may recall these inaccurately, and may consciously or unconsciously distort or conceal their views. Accounts of participants' meanings are never a matter of direct access, but are always constructed by the researcher(s) on the basis of participants' accounts and other evidence.

Dealing with validity threats is a complex issue in critical post-structural research as prior designs to deal with the anticipated and unanticipated threats can never be generic to validity of particular features of the accounts. However, to establish trustworthiness and ensure objectivity, I reflected on my own subjectivity *(self-reflexivity)* (Lather, 1986) and made judgments on the quality of the research and its contribution in stimulating knowledge generation *(potential for catalytic validity)* (Janse van Rensburg, 2001; Kincheloe, 1991; Lather, 1986). Document analysis and interview data correlation validated the origin of the discourse. A form of *triangulation* was conducted through historical records analysis, observation and interviews to ensure quality, which was further deepened through the use of Critical Discourse Analysis (CDA). A validation exercise was done by trying to ensure that procedures for gathering data were standardized and addressed factors concerning the researcher e.g. attitudes, gender, personality, and questioning techniques (self-reflexivity). I kept a close watch over the factors capable of influencing the research. As Bourdieu (2004: 89) observes reflexivity in social science occurs when research takes

> … itself for its object, uses its own weapons to understand and check itself, it is a particularly effective means of increasing the chances of attaining truth by increasing the cross-controls and providing the principles of a technical critique, which makes it possible to keep closer watch over the factors capable of biasing research.

Validity of data is a complex exercise in some situations where less tangible concepts such as power are involved. As Kumar (1999) puts it you need to ask several questions in order to cover different aspects of the concept and demonstrate that the questions asked are actually measuring it. Validity in such situations becomes more difficult to establish. I also deployed *theoretical validity* (Maxwell, 1992) in my data analysis by working closely with key concepts derived from literature.

Validity related to CDA in post-structural design

Post-structural research recognizes both the constitutive force of discourse and in particular of discursive practices, and at the same time recognizes that people are capable of exercising choice in relation to those practices. In carrying out the CDA of policy texts within a post-structural orientation, I assumed the role of a social critic in the analysis to feedback the knowledge gained into the process in a way that was most likely to bring about the desired changes, that is a positive change. Post-structuralism encourages critique and the subversion of authority through reflexivity and deconstruction.

> Reflexivity is a key feature of post-structural research, and here it goes beyond the personal reflexivity of the critical researchers stating the standpoint from which they conduct research, or the confessional field journal of interpretivist researchers explaining their biases. This kind of reflexivity requires researchers to be aware, throughout the research process of how socio-historical practices and conventions including language position them as researchers and shape the research they undertake. (Janse van Rensburg, 2001: 13)

To ensure validity in the critical discourse analysis of policy documents, I made sure that data was presented coherently, generating novel findings that were plausible and grounded my analysis within a theoretical framework, research questions and within the field of environmental education and policy research. However, I avoided single and pre-

mature claims by opening up possibilities for further interrogation of data and insights by providing multiple endings (Janse van Rensburg, 2001). I did this by bringing in opposite views and contestations raised by different respondents. In this way I was trying to make my interpretations and reflections on the generated data more authentic and open to scrutiny. Through this I was attempting to make my research narrative more catalytic for further and better understanding of environmental education policy processes (see chapter 12).

5.8 Ethical issues

Ethical issues were considered in this research in order to deal with the dilemma of striking a balance between my role as researcher and the rights and values of the research participants. Gaining access to organizations and schools was negotiated with relevant authorities. All ethical questions were addressed and observed before and during data generation and collection "by seeking subject's agreement to be interviewed and quoted, negotiating release of transcripts etc." (Gough, 2003: 3). Participants were briefed about the purpose of the research and their rights as participants in research before data collection (see section 5.4.2). This was done to ensure that there was an informed consent, free choice to take part and to place some form of responsibility with participants with regard to what the answers they would be giving (Cohen & Manion, 1994; Bell, 1999). As De Vos et al., (1998: 23) put it "the final responsibility for the ethical conduct rests squarely with the researcher concerned".

I avoided violation of privacy by acting with the necessary sensitivity where privacy of subjects is relevant and by respecting anonymity and confidentiality of the information provided on or by respondents. However, there were no incidences where interview participants felt that their names or what they were saying needed protection and privacy through confidentiality. Therefore confidentiality never became a challenge or dilemma in this research. I paid particular attention when probing "sensitive and personal information from subjects" (De Vos et al., 1998: 25) to avoid exposing respondents to the possibility of emotional harm. In analysing data, care was taken to avoid betrayal or breach of trust. Letters of thanks were written to all those who provided information and

access to the institutions. The research is a critical analysis of policy construction and interpretation and for ethical reasons it is presented as such, avoiding criticism and offering space to invite readers to consider it as a valuable resource in policy research.

I also observed ethical issues in questionnaire administration. Participants were given an explanation of the purpose of the questionnaire. They were also given the chance to remain anonymous if they wished. This was not only to allow them to freely provide information but also to give informed consent. In the final analysis and write-up of this research the respondents' names have been eliminated from the text for ethical reasons. According to May (2001: 60) 'informed consent' refers to

> … freely given agreement on the part of the researched to become a subject of the research process. However, this is not only based on a complete understanding of the aims and processes of the research itself, but also may assume to encompass any consequences that follow from its publication in the public domain. A researcher might, and in many cases ought to take all possible steps to protect the identity of any person in the anticipation of any information being used for purposes other than those intended.

The respondents are given due recognition in the acknowledgments without mentioning their names and a list of their names appended without linking them to the data they provided, except for those who gave consent.

5.9 Summary

This chapter has traced the research design, methods and analysis process, as guided by a post-structural orientation. Descriptions of how data were accessed, generated, processed, and analyzed are provided. It covers tools that were used to collect data and the challenges experienced. It explores how data were validated to ensure quality and trustworthiness.

Data processing and analysis is a rigorous and systematic exercise based on empirical evidence gathered through document analysis, interviews and observations. Analyzing data manually is time consuming but it gives the researcher a deeper understanding of the data. Breaking through – i.e. creating synergy between the theory of post-structural

research methods and the empirical evidence – was a challenging experience aided by both inductive and abductive modes of inferences through which inductive interpretations were recontextualised with the help of general concepts and categories and theoretical perspective. Modes of inference enabled the detection and revelation of meanings, relations and coherence in relation to the research questions guiding the study.

Validation of data and analysis was a challenge, particularly reflexivity as it is difficult to isolate yourself (researcher's voice) from the critical analysis of the field you are in. However, attention to data validation assisted in addressing quality questions. The next chapters report the outcomes of the research design decisions described in this chapter.

PART B

CONSTRUCTING A GENEALOGY OF ENVIRONMENTAL EDUCATION POLICY IN BOTSWANA

CHAPTER 6

A HISTORY OF ENVIRONMENTAL EDUCATION POLICY DEVELOPMENT IN BOTSWANA

6.1 Introduction

As indicated in chapters 1, 4 and 5, various research processes were employed to conduct the genealogy of environmental education policy in Botswana. Firstly, I undertook a relatively 'traditional' historical review, based on content analysis of environmental education policy documents to construct a 'linear history' of environmental education policy processes. This chapter provides a broader historical landscape as a key component of constructing the genealogy of environmental education policy in Botswana. It critically analyses the historical development of education policy in Botswana. It is biased towards the changes that lead to the conceptualization of environmental education and its introduction into the Revised National Policy on Education (RNPE) in 1994. It examines both national and international factors that influenced education policy development focusing on environmental education in Botswana. The chapter critically interrogates events to identify key players, their intentions and tries to isolate silent but important players. It deploys post-structuralist approaches to bring to light the reason behind motivations for initiating the introduction of the policy, and tries to understand why players were motivated and why some (like teachers) were unable or did not take an active part in policy formulation.

The chapter explains that educational systems and practices, which were inherited as a colonial legacy, have not served the field of environmental education well. However, over twenty years later, the increasing attention given to questions of how to improve the quality and the effectiveness of educational programmes has brought an increased focus on environmental education policy discourse. In this chapter I provide a descriptive analysis of the context and processes of reform along with reflection on factors that contributed to the incorporation of environmental education into the 1994 Revised National Policy on Education (RNPE). The chapter traces the historical development of

the education system to locate the emerging 'interest' in environmental education in relation to global environmental policy discourses discussed in chapter 2.

From the Curriculum Development and Evaluation files in the Resource Centre, the National Reference Library, University of Botswana Faculty of Education and Kalahari Conservation Society records it has become clear that substantial efforts were expended on lobbying the government to introduce environmental education into the national curriculum (see section 6.6.4). Official files provide a rich record of meetings, communications and decisions relating to environmental education in Botswana. Various legislation, workshops and conference recommendations and non-governmental organizations (NGOs) efforts have consistently provided a sense of direction for the development of educational policy. These developments also provided the impetus and justification for a climate within which reforms could be responsive to the need to incorporate environmental education into the education system.

6.2 History of the education system in Botswana

As an opening to the sub-sections below I note what Nieuwenhuis (1996) said which illuminates most of the key points with regard to policy discourses in Botswana.

> … [an] education system is a multiplicity of historical, social and political factors and forces interacting in such a way that the emerging system is in a constant mode of gradual evolution. For this reason, any existing education system, whatever its origins, imposes real limits upon the changes that any stakeholder group or decision-making body can bring about. (Nieuwenhuis, 1996: 123)

6.2.1 Colonial and post-colonial education in Botswana

The development of formal education in Botswana can be traced as far back as 1844 when the missionaries introduced a western education system based on Christian scriptures (Yoder & Mautle, 1991: 12). As more missionary schools were developed around the country, the curriculum expanded and emphasized ''reading, writing, arithmetic and scripture in *Setswana''* (*ibid*). With increasing dissatisfaction with the western Christian based education model some local communities started establishing their own schools (Yoder & Mautle, 1991). The colonial government started showing

interest in education in 1904 by offering partial grants. A more serious involvement began in the 1930s when the Protectorate Government established the Education Department. The curriculum expanded a little adding Geography, History and Domestic Science. Despite these expansions the quality of education remained low throughout the pre-independence period (*ibid*). The local communities had no say in their children's education and there was no 'education policy' *per se* for the country apart from the imported colonial education system. This scenario demonstrates an asymmetrical distribution of power in favor of the missionaries and colonial authorities who introduced a formal western education system in Botswana.

At independence in 1966, "very little attention had been given to the physical and social infrastructure of the country. Education had been neglected, the population was largely illiterate and very few Batswana were available to fill professional and technical positions" (Botswana Government, 1997b: 14). The granting of independence to the country did not see an immediate shift and innovation of the curriculum. Education policy reform became a process. Shortly after independence, the government of Botswana emphasized developing the almost non-existent secondary and higher education systems. It was almost ten years later (in 1975) that the Government established an Education Commission to review the education system. The Commission's report led to the first National Policy on Education of 1977. This policy established the Department of Curriculum Development and Evaluation that was charged with the responsibility of, among other things, to

- Coordinate the implementation of all curriculum development policies;
- Translate the educational goals into educational programmes;
- Monitor revision of syllabi; and
- Plan for the design and preparation of materials to be used in learning and teaching (Yoder & Mautle, 1991: 24).

The 1977 National Policy on Education did not include environmental education and was the subject of criticism from civil society and environmental education campaigners. Environmental education was not represented in the report. The commissioners did not

even ‘import’ ideas from the western countries they visited where environmental education was already part of the education system. The report and the White Paper concentrated on five national principles for the education system:

- the promotion of democracy,
- the development of the population,
- the promotion of self-reliance,
- the promotion of national unity, and
- the promotion of *Kagisano* (harmony). (Botswana Government, 1977a)

The policy emphasized the principles of rapid economic growth as the solution to the social, economic and political difficulties that the country was facing. As Kiluva-Ndunda (2001: 62) put it “education was seen as much, or more, of an economic service rather than a social service”. It was a principal means for relieving the shortage of a skilled work force and equalizing economic opportunities among all citizens of the country. The education structure was reviewed as one of the strategies to realize the country’s aspirations for future social and economic prosperity through the education system..

6.2.2 Structure of the education system

The structure of the education system has changed twice since independence. The structure is important because it shows how different levels relate to each other, how individuals may progress from one level to another, the various exit points and the variety of learning opportunities offered to individuals of different abilities and aptitudes (Botswana Government, 1994).

The National Policy on Education of 1977, on the recommendation of the First National Commission on Education, adopted a change in the structure of education from seven years (primary), three years (junior secondary) and two years (senior secondary), i.e. 7 + 3 + 2, to a 6 + 3 + 3 system. However, this structure was changed in 1994 to the old 7 + 3 + 2 due to considerable difficulties encountered in changing to a 6 + 3 + 3 structure for education. Re-introducing the 7 + 3 + 2 system was seen as organisationally easier and it was envisaged that it would solve many of the educational problems that

confronted the education system at the time, namely improvement of the quality of basic education whilst maintaining the present level of access (Botswana Government, 1994). With this new structure, 10 years of basic education, i.e. primary and junior secondary education, was to be made available to almost all children. The 1994 Revised National Policy on Education provided an opportunity to expose learners to different kinds of innovations in the curriculum such as the introduction of environmental education.

6.3 Education policy formulation process

This section deals with the policy formulation process of the 1994 Revised National Policy on Education, through the second national commission on education. It should be noted here that the policy construction process originating from Presidential Commissions were subjected to a consultation process in Botswana (see figure 6.1). Both the 1977 and the 1994 National Education Policies emerged from Presidential Commissions. This reflects power distribution in policy development processes and demonstrates how education policy discourses could be highly politicized.

An extensive consultation process was undertaken in the formulation of the 1994 Revised National Policy on Education. The initial procedure was that the President appointed a Commission and its chairperson. The Commission was composed of personalities of high standing in society, and in the academic field of education, with rich educational experience and exposure to educational systems from other countries. Three of the members were from outside the country, that is from Germany, Malaysia and Singapore. The purpose of including these three members was to "give the work of the Commission an international flavor and experience of other education systems" (Botswana Government, 1993: i). A secretariat was established for the Commission, with positions filled by senior personnel to service the Commission, giving it more power and authority. The Commission was guided by a terms of reference (see appendix 6.1) which required them to conduct a comprehensive review of the entire education system and make recommendations to Government. As it was commissioned from the highest political office of the land, the Commission commanded a great deal of respect and was given all the necessary support to conduct its business nationwide and internationally. The Revised

National Policy on Education "was conceptualized to be a product reflecting a broad consensus of the Botswana population, and various methods were used to reach a cross section of Botswana society" (Botswana Government, 1997: 83). The Commission consulted with the members of the public on how the education system should be through the press, plenary meetings, seminars, and by inviting submissions, either oral or written, by individuals or organizations. The Commission also conducted visits to urban and rural areas, contracted research and policy studies, external study tours and specialized sectoral sub-committee meetings to gather data and process information.

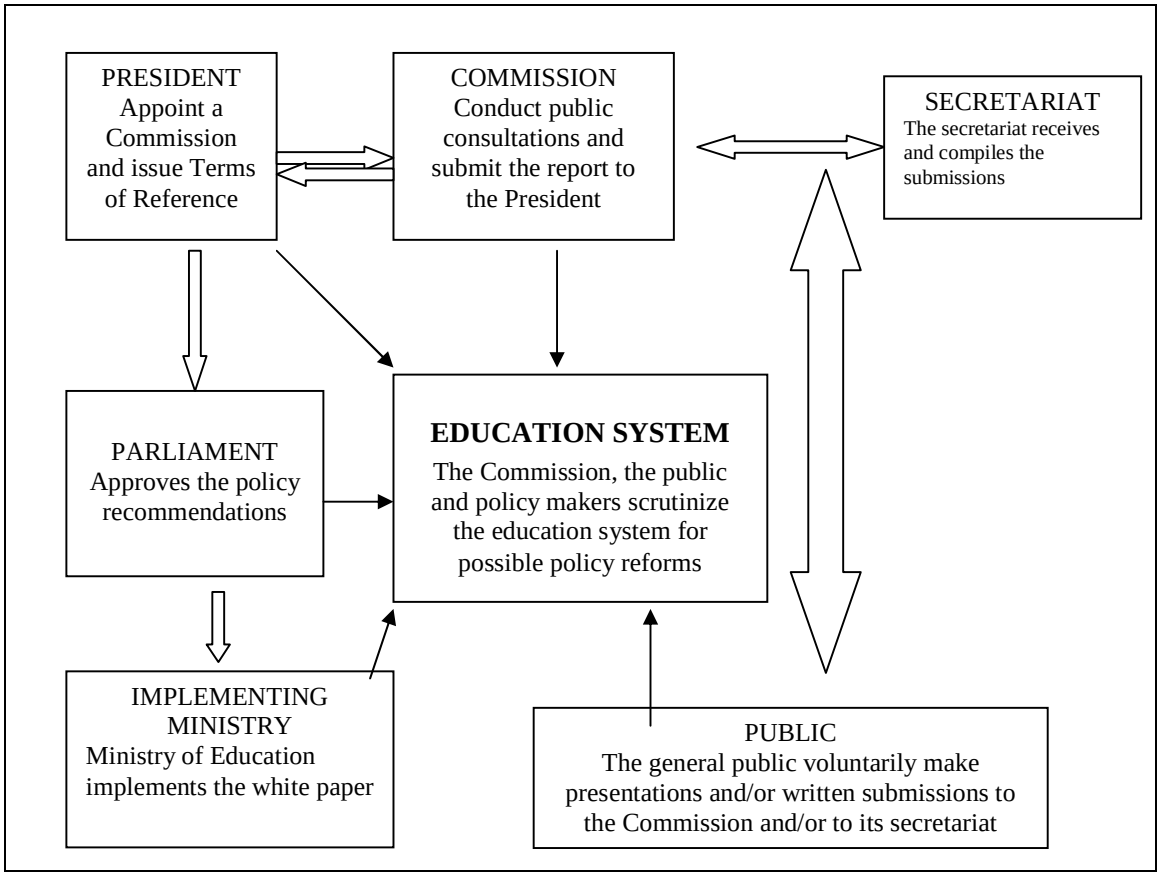
The involvement of the general public (including illiterate citizens) was actively sought during the formulation of the education policy. Through the Commission, educators, community leaders, parents, political and civic organizations and the general public were invited for interviews and to make submissions. This process opened up opportunities for the often 'silent-voices' to contribute to the national discourse on education as a series of open hearings or *kgotla* meetings, which were held in the districts and urban centres. However, as Kiluva-Ndunda (2001: 58) put it "whether their views have any impact on the educational guidelines that result from these commissions is another issue". Kiluva-Ndunda (2001: 58) further cites Downey (1988) in arguing that "policy is an instrument of governance and policy making and involves the processing of needs and demands of society as well as establishing guidelines for the functioning of the system".

Members of the public were invited to present written and oral submissions to the Commission. This process gave the public an opportunity to express their views. The Commission also consulted outside the country (e.g. Europe). Although the commissioners cast their consultation net widely, the task of the final decisions on what to include in the report was their sole responsibility. The details of the report on environmental education are reported in section 6.5.2 (ii).

The procedure described above and illustrated in figure 6.1 demonstrates clear political control over major policy decisions. As Thomas (1996: 5) puts it "the Botswana state is

run by a politico-administrative elite with a high degree of reciprocity and cross-fertilization of ideas between the two key groupings of senior bureaucrats and politicians.

Figure 6.1 Policy formulation process in Botswana



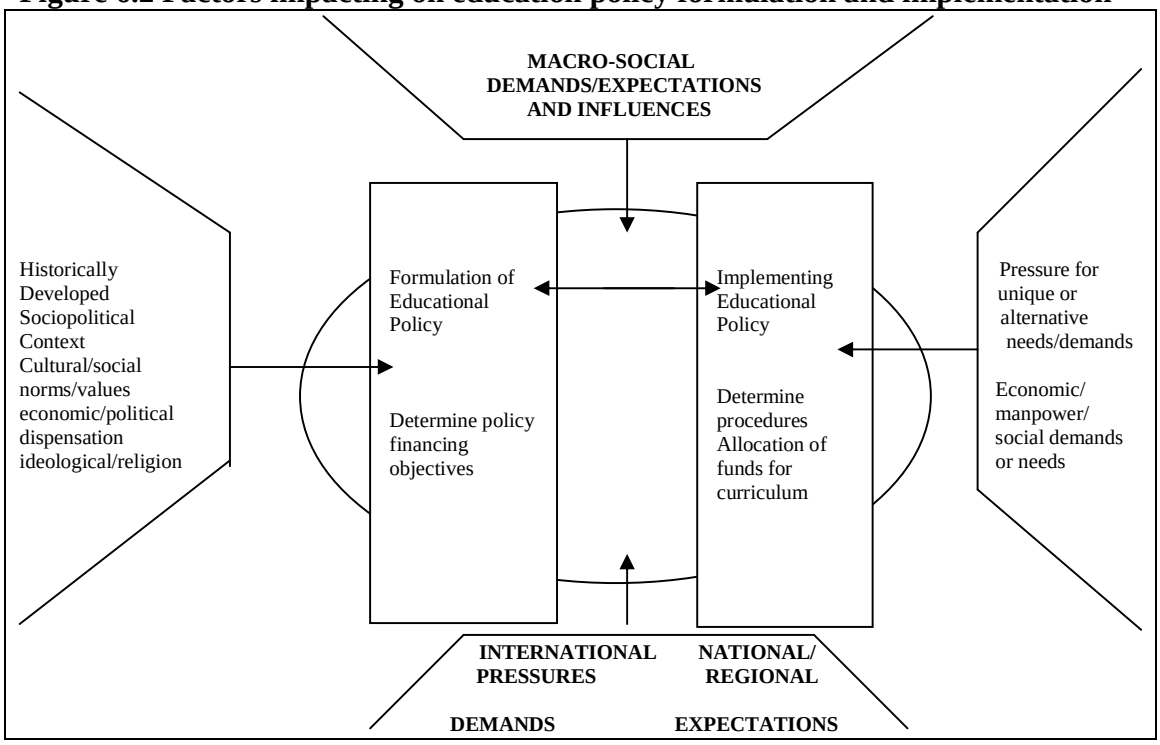
However, there was space for devolution of power to the general public through the offer of an opportunity to 'voice' their education aspirations through a consultation process. Once public consultation was completed the Commission worked through its secretariat to consolidate the findings. The general rule, particularly in new policy areas where detailed alternatives need to be evaluated, was for technical aspects of policy-making to be worked out by officials in the relevant departments in some form of secrecy before the new policy was announced. Typically, there was a period of 'consultation' between senior officials and politicians (e.g. Minister of Education) before the policy was

implemented on a set date (Thomas, 1996). The next section analyzes factors impacting on education policy.

6.4 Factors impacting on environmental education policy formulation

Policy making processes are very complex (see chapter 3 and figures 6.2 and 6.3 below). They are characterized by a multiplicity of factors, amongst them the government political agenda (at macro level). The state, however, cannot operate in isolation from world influences and mega trends that have to be taken into consideration in policy formation on education (see chapter 2). State decisions are taken in response to social demands and expectations either influenced by internal or external circumstances such as technological advancement or economic position. Decisions taken by the government are often reflected in the education policy developed, which influences the finances funneled into education and the objectives set for the education system (Nieuwenhuis, 1996). There are linked stages in policy development processes (see chapter 3). There is a close relationship between policy formulation, implementation and evaluation (see figure 6.2).

Figure 6.2 Factors impacting on education policy formulation and implementation



Adapted from Nieuwenhuis (1996: 10)

The interface between stages may reveal some obstacles related to socio-political contexts or cultural values that may call for reformulation (see chapter 3). Figure 6.2 above illustrates that a number of factors may be taken into consideration in policy formulation and implementation (see chapters 2 and 3). These factors include, amongst other factors, the socio-economic, demands and expectations from the community (local and global), pressure for human resource needs and funding for curriculum change. These factors (in figure 6.2) relate to some of the factors that shaped environmental education policy processes in Botswana. These factors include socio-ecological factors, socio-economic factors, and global environmental discourses (see chapter 2).

6.5 Factors shaping environmental education policy in Botswana

6.5.1 Ecological factors influencing the development of environmental education in Botswana

The *Long-term National Vision for Botswana* (Botswana Government, 1997: 22) states that "The challenge of preserving the environment and making prudent use of the natural resource base of Botswana is crucial to its survival and future prosperity". One of the strategies that would ensure that the country preserves and makes prudent use of its natural resource base for its survival and future prosperity is an education policy that includes environmental education. Botswana is prone to drought, mainly because of its semi-arid climate. However, since independence the country had experienced rapid population and economic growth rates leading to growth in industrialization and urbanization. These processes create pressure on the natural environment leading to numerous environmental problems related to excessive utilization. Some of these environmental problems are land degradation and conflicts, pollution, wildlife depletion, and pressure on water resources.

> Land pollution stems primarily from poor waste disposal and management. Problems associated with waste management in Botswana include littering and poor waste collection and disposal and reduced land availability for other uses. Land dereliction problems emanate from the extraction of building materials such as sand, gravel, poles and grass and from the dumping of building rubble at the rural-urban interface. Land dereliction in the areas immediately around Botswana's urban areas is evident in the prevalence of burrow pits and building

> rubble dumping sites found in these areas (National Conservation Strategy Agency, 2002b: 15).

Key environmental issues include loss of biodiversity resulting directly and indirectly from increase in human activities which place increasing pressure upon natural resources with their impacts having unprecedented cumulative effects upon the whole ecosystem and livelihoods. The country experiences increase in livestock populations, increased incidences of fire, rangeland degradation, habitat fragmentation, arable agriculture, excessive gathering of fuel wood, illegal hunting, and unsustainable harvesting of veld products. These problems do not only result in the loss of biodiversity but also impact on tourism and recreation. In summary, high rate of population growth, rapidly changing lifestyles, characterized by urbanization and higher per capita consumption of resources places increasing strain on the environment, the country's natural resource base. The above environmental problems necessitated the introduction of ecological and sustainability knowledge in the national curriculum to avert what may develop into an ecological catastrophe in future that would have unbearable consequences for livelihoods and sustainability in Botswana.

6.5.2 Socio-economic factors

The relationship between economic development, population growth, the resource base and environmental quality is very complex and does not easily allow clear-cut deductions about cause and effect relationships. In Botswana, economic activities are intimately intertwined with the pressures on the natural environment. The rapid economic development (e.g. mining and agriculture), rapid population growth, urbanization, HIV/AIDS, poverty and inequality and literacy and the impacts of these on the environment necessitate a response from the education system to address them. Poverty has been and continues to be seen as a major cause and consequence of environmental degradation and resource depletion. Poverty (rated at 23% by 2001) remains associated with income inequality, unemployment, recurring drought, inflation and diminishing agricultural returns, all exerting pressure on the limited natural resources.

6.5.3 International organizations influencing policy discourses

Botswana like most of the countries in the southern Africa region and worldwide is facing environmental problems that may reach climax proportions. The proliferated use of natural resources for human benefit and recurring droughts is rapidly destroying the basis for human survival. Globally, there is an extraordinary squandering of the earth's non-renewable resources causing potential environmental devastation. As noted by Oakes (1997: 1),

> The excessive burning of fossil fuels resulting in the build up of atmospheric carbon dioxide is causing a potential global warming catastrophe. World population is growing exponentially, exhausting earth's finite resources. Industrial and household toxic wastes are poisoning the air, water, and soil. Tropical deforestation is resulting in an unprecedented loss of species and biodiversity. In our quest for development and an 'improved standard of living' for ourselves, we are causing widespread damage to our planet, evidenced by soil erosion, pollution, deforestation, extinction of species, etc.

These global problems and issues are an interconnected web of social, economic, cultural and political factors that do not only attract intense debates but proactive actions, policies and strategies (as illustrated in chapter 2). Botswana is a member of the international community of nations, and in this respect is a signatory to many treaties, declarations, agreements, conventions, etc, which have far reaching implications for its own education system and raise important curriculum concerns. Amongst these are the 1992 Earth Summit and the 2002 World Summit on Sustainable Development. These specific agreements and declarations have become increasingly global in dimension (see chapter 2). "As a responsible member of the community of nations, Botswana ought to take these concerns seriously" (Wright, 1995b: 15). This review focuses on environmental initiatives that Botswana is part of and is directly or indirectly obliged to uphold its objectives.

Botswana has collaborated with multilateral and bilateral organizations to create opportunities for policy reform in education. Some collaboration was specifically focused on environmental education while most was focused on general education policy reform. During the formulation of the 1994 RNPE a number of international donor organizations

and educational agencies assisted in the work of the Commission in different ways. Such organizations include UNESCO (the United Nations Education, and Science and Cultural Organisation), UNICEF (the United Nations International Children's Educational Fund), Sida (the Swedish International Development Authority), USAID (the United States International Development Aid) and the Commonwealth Secretariat. A synopsis of their contributions is provided below.

Role of Bilateral Organizations

USAID and the Botswana Government collaborated on a number of projects including educational projects. One project, which was specifically related to environmental education, was the Natural Resources Management Project Contract no. 690-0251-C-00-0033-00. Under this project an Environmental Education Specialist (from the US) was attached to the Department of Curriculum Development and Evaluation (CD and E) in 1991. The Department nominated an officer to understudy him. The purpose of this project was to assist the Ministry of Education, particularly the Department of Curriculum Development and Evaluation to introduce environmental education into the national curriculum and to produce learning support materials for environmental education. A number of projects were undertaken under this collaborative agreement. Activities included a needs assessment conducted among primary school teachers and administrators (Oakes, 1997) to determine the environmental literacy of teachers and administrators. The next needs assessment, in 1991 and 1992, focused on junior secondary school teachers and primary school teacher training college lecturers and principals (Oakes, 1997). These projects were useful as they assisted in determining the scope of teachers' environmental awareness, their activities in environmental education and the extent to which environmental education existed in the curriculum (Reed, 1991). USAID also participated in the 1989 and 1991 national consultative conferences on education. Participation was in the form of personnel, facilitation and funding of the conferences.

This bilateral project demonstrated Government willingness to improve the education system and to incorporate environmental education into the policy. The project added

pressure on the decision makers to seriously consider environmental education in the Revised National Policy on Education. Although the government was not obliged to accept and implement the results of the survey it accepted the call to incorporate environmental education into the Revised National Policy on Education in 1994. A post-structuralist reading of this situation would suggest that by accepting the introduction of environmental education into the education system the government was 'reacting' to the effect of techniques of power relations that are manifest in bilateral cooperation (Gore, 1998).

Another bilateral agreement was between the Swedish International Development Authority (Sida) and the Botswana Government. Sida "provided a substantial proportion of funding, through its Educational Evaluation and Research component" (Botswana Government, 1993: iii) to review the entire education system between 1992 and 1993. The report of this review gave birth to the inclusion of environmental education in the national curriculum in 1994 (Botswana Government, 1994).

Multilateral agencies

Another call for change in the education system was made by the Government of Botswana/UNICEF consultancy of 1989 as follows

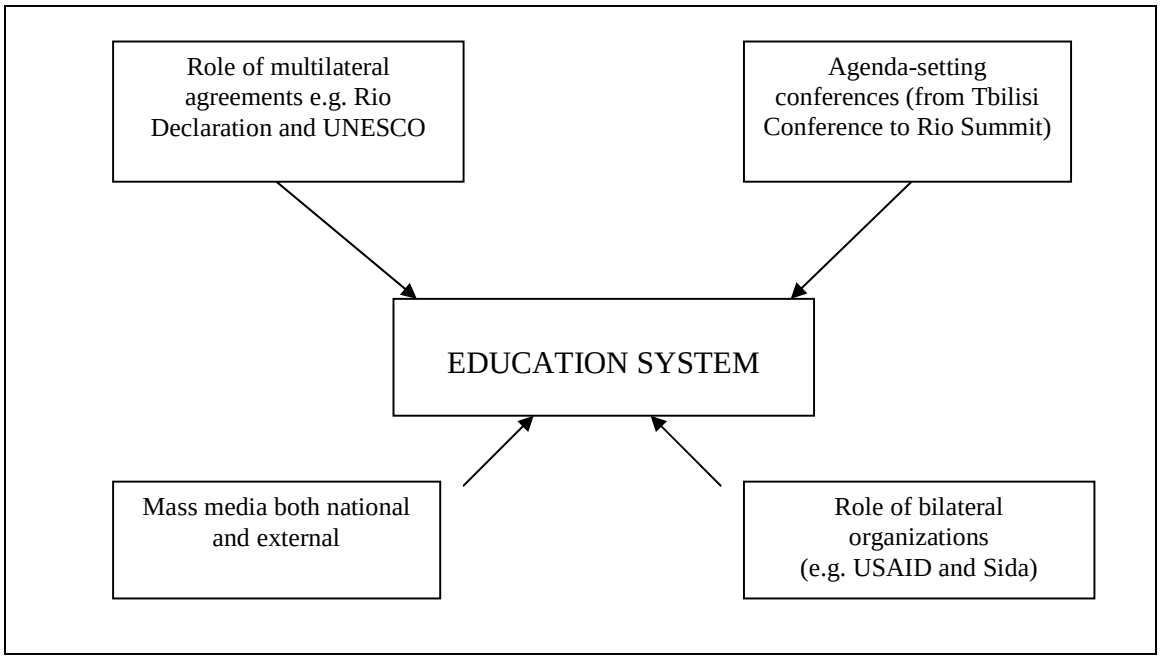
> use curriculum review and evaluation as a mechanism to implement innovations in the education system, as well as a tool to make incremental changes - curriculum is undergoing drastic changes, designed to retool away from an 'academic' education to 'educate for life.' (GOB/UNICEF, 1989: 192)

The Government of Botswana participated in the United Nations Conference on Environment and Development (UNCED) in 1992 (see section 2.2). Since the Summit it has aligned itself with the outcomes of the conference. The main outcomes of the conference were the Rio Declaration on Environment and Development and Agenda 21 demonstrating global consensus and political commitment at the highest level on sustainable development. Agenda 21 addresses a number of sustainable development challenges, among them education, training and public awareness. This multilateral

agreement came out at the same time that the Commission on National Education in Botswana was in the process of nationwide and international consultation. It was an opportune moment and event to influence the nation, the commissioners and hence the Botswana Government, to accept environmental education as one of the responses to the international agreement particularly those aspects related to chapter 36 of Agenda 21 (see chapter 2).

A follow-up summit marking ten years after the Rio Earth Summit was held in 2002, in South Africa. At the World Summit on Sustainable Development, Botswana presented its progress report reflecting some progress on education. The report highlighted the 1994 RNPE and related policy documents and activities as indicators of milestone successes in implementing Agenda 21. This event gave the country a chance to reflect on its multilateral commitment and further cemented Government commitment to environmental education and sustainable development.

Figure 6.3 International influences that shaped the environmental educational policy



Both bilateral and multilateral relations with Botswana enabled her to accept a national and global call to address socio-ecological problems by using education as tool in

environmental policy discourses. As mentioned in chapter 2, some of the powerful organizations such as the World Conservation Union (IUCN) and World Wide Fund for Nature (WWF) deployed their power through coalitions and partnerships with organs such as UNESCO and used the power of the media to influence changes in environment and education policy discourses at country level.

The role of mass media

There is no easy way to monitor the use of mass media in influencing environmental education policy making. The mass media however, has an influential role in raising environmental awareness informally. Mass media promotes sensitivity and feeling for the environment through, for example, coverage of events such as the World Environment Day, National Water Week, National Tree Planting Day, etc. to raise public awareness and influence public policy processes. The 1992 National Commission on Education used the Botswana Government owned media such as the National Radio Station and the *Daily News* to publicize its public meetings and to report on consultations.

Both local and international media may play a role in promoting appreciation of the environment, and positive attitudes. The implication for policy processes is that the general public, NGOs, and practitioners may be more motivated by the media to influence environmental education policy. In addition to socio-ecological issues, economic factors and global environmental policy discourses some key local role players emerged and made significant contributions to environmental education policy construction in Botswana.

6.6 Key local role players in environmental education policy construction

6.6.1 Government initiatives in relation to education

Since independence, education has been one of the government priority areas for development. The power of education has been seen as a pillar of development and an instrument to foster social and economic change. The government assumed central

responsibility for education through the Education Law of 1966 at all levels and gradually removed or shared responsibility with various communal and religious bodies.
Any form of education similar to environmental education could be traced to Wildlife Club activities that were started in the 1970s by the Department of Wildlife and National Parks (Modise, 1978). The activities were treated as extra-mural as teachers and students participated in those activities after normal teaching hours and over the weekends or even during school vacations. The activities included talks about wildlife, game viewing, and wildlife youth rallies (where environmental messages were spread through drama, songs and some debates) (see section 6.6.3). These activities gained popularity over time and more clubs were formed for groups from primary to tertiary levels. The clubs diversified their activities to include general issues including environment. The clubs received support from the Department of Wildlife and National Parks (DWNP), later from Kalahari Conservation Society (KCS) and through KCS, got support from the former European Economic Commission (EEC), now known as the European Union (EU). Among its key contributions in the development of environmental education in the country, was a recommendation to the Department of Curriculum and Evaluation on the teaching of environmental education issues. The clubs worked hand in hand with the department to produce learning and teaching material. The Association has since changed its name to the Association of Environmental Clubs of Botswana.

A more formal recognition of environmental education can be traced to the 1991 Planning Conference on environmental education and the Rio Summit (see chapter 2). Following these two events, the 1992 Presidential Commission on Education accepted the recommendation to introduce environmental education into the national curriculum (see section 6.3). It was on the basis of these two conferences that the National Commission on Education of 1993 recommended environmental education and it was accepted by the government as a policy to incorporate environmental education into the education system in Botswana.

> This National Policy on Education, Government Paper No. 2 of 1994 paved the way for the purpose of implementation and institutionalization of environmental education in the Ministry of Education. To a large extent the goals of Agenda 21

> are in line with Botswana's own goals of sustainable economic development Education, especially environmental education, is considered as one approach towards sustainable development (National Conservation Strategy Agency, 2002a: 236).

Institutionalization of environmental education

The National Assembly approved the RNPE in April 2004. This effectively institutionalized environmental education into the education system. Implementation started in 1996. The Department of Curriculum Development and Evaluation was charged with the responsibility to spearhead its implementation. An Environmental Education Panel was constituted in October 1998 with representatives from across a number of subjects. The Panel developed *Environmental Education Guidelines* after an intense and careful review of the entire primary, secondary and tertiary curricula to identify areas related to the environment. These *Environmental Education Guidelines* (critically analyzed in chapter 8) are to be used by educators as programme and reference material for infusion of environmental education across the curriculum.

Since then, the National Conservation Strategy Agency (NCSA) has developed the National Environmental Education Action plan for environmental education implementation. The plan is comprised of a variety of activities including use of resource materials and activities such as School Environmental Policy Development, pre-service and in-service training. Since the 1991 Environmental Education Planning Conference, NGOs, the Teacher Training and Development Department and NCSA have been organizing various training workshops to train trainers and teachers at all levels. Training in environmental education has taken off at the University of Botswana, for both pre-service and in-service teacher trainees.

Other activities promoting institutionalization of environmental education and environmental awareness among the public and school children include:

- The regional and national environmental education fairs that bring schools together to showcase their environmental projects and activities,

- The 1998 EEASA Conference that was held at the University of Botswana was attended by over 200 teachers and 50 education officers from Botswana. The government, through the multi-sectoral National Environmental Education Committee, hosted the conference. The conference added impetus to environmental education policy implementation as the Ministry of Education re-affirmed its commitment to environmental education.
- The 2000 National Environmental Education Conference was attended by over 200 teachers from government schools and some education practitioners from non-governmental organizations.
- The 2002 EEASA Conference held in Gaborone, was attended by over 70 educators from Botswana and resulted in the Gaborone Declaration on Environmental Education and Sustainable Development (EEASA, 2002). The Ministry of Education funded most of the conference participants.
- Commemoration of Environmental Days, which are annual events that take place countrywide. The most popular celebration is World Environment Day, as it always enjoys wide publicity.
- Colleges of education are also fully integrating environmental education to their formal as well as extra curricular activities. Environmental education is an integral part of the subject S*ocial and Environmental Studies* taught in all Colleges of Education.

The above activities indicate that environmental education is gaining institutional recognition and that Botswana is reacting positively to global power influencing environmental education policy discourses. Botswana's National Report to the World Summit on Sustainable Development (2002) has noted that

> The lack of participation in the National Environmental Education Fairs by certain schools indicates some misplaced values about the provision of Environmental Education. The curriculum is also seen to be limited in offering attractive posts of responsibility. This may also undermine the efforts made and aims of environmental education. (Botswana National Agenda 21 Coordinating Committee, 2002: 238)

Despite this situation described by the National Agenda 21 Coordinating Committee, there are some activities that are beginning to be normalized in Botswana, giving environmental education more legitimacy in the education system:

- The attendance of the annual EEASA conference by environmental educators from public schools, the Association of Environmental Clubs and Non-Governmental Organizations,
- School administrators' support of environmental education in schools (see chapter 9),
- Materials to support teachers are being provided by the departments of Curriculum and Evaluation and Primary Education,
- The Ministry of Education organizes and runs annual regional and national Environmental Education Fairs by the Ministry of Education (Botswana National Agenda 21 Coordinating Committee., 2002),
- The University of Botswana has introduced environmental education courses for teacher trainees and in-service educators.

Although the monitoring of environmental education goals are not clear, there are existing structures that lay the ground for monitoring and contributing to institutionalization. The existing government structures, NGOs and tertiary institutions all contribute to institutionalization of environmental education. The multi-sectoral National Environmental Education Committee (NEEC) and National In-service Training committee are testimony to possible monitoring mechanisms to enhance environmental education processes in the country. The national collaboration through the National Environmental Education Committee, the Department of Teacher Training and Development and other forums ensures that efforts by stakeholders complement each other.

6.6.2 Key policy development processes influencing environmental education

Legislation was passed after independence that precipitated the need for environmental protection and awareness. Some of these environmental acts influenced environmental awareness. The Agricultural Resources Conservation Act (NCSA, 2002) provided for the

conservation of agricultural resources including soil, vegetation, water, and animals. The Water Act of 1968, provided for the protection of water resources, ownership of water rights, granting of water rights, and development of water resources. The Mines and Minerals Act of 1968, provided for the protection of the environment in and around mining areas (Oakes, 1997).

The Wildlife Conservation and National Parks Act of 1992 (Botswana Government 1992) which provided for the zoning of certain areas containing wildlife and other objects of interest for the benefit of people and for the control and management of the parks and their protection. These acts and many more were supported by national development plans and policies. For instance, the National Development Plan 7 has emphasized environmental issues and the need for environmental education at all levels. The relation between national conferences and national policies is reflected on Table 6.1**.**

The 1977 National Policy on Education

The 1977 National Policy on Education was an outcome of the 1975 Presidential Commission on Education. The National Commission on Education was established by Presidential directive and was given very broad terms of reference. The commission was asked to review virtually the whole of Botswana's education system, "to consider the goals that Botswana wants education to achieve; to identify major problems in the system; and to recommend ways of overcoming those problems" (Botswana Government 1977: 1). This commission was set up because

- The education system was in transition from the colonial education system,
- Schools and students had increased rapidly having some effects upon the education system,
- There was an indication from political parties' manifestos to change the education system, and
- There was public and General Assembly criticism of the education system (Botswana Government, 1977).

The policy was assessed in 1980, 1985 and 1990, "in order to make proper decisions and keep the policy moving in the right direction" (Government of Botswana, 1977: 16). The purpose for the 1975 education review and the reasons why the Commission was set up do not reflect that environment and environmental education were issues to be considered in the education system. The National Policy on Natural Resources Conservation and Development of 1990 mentioned environmental awareness.

Table 6.1 Summary of some national conferences and policies examined

YEAR	NAME	TREATMENT OF ENVIRONMENT	TREATMENT OF EE
1977	National Education Policy	No discussion or recommendation on environment	No discussion or recommendation on environmental education
1989	National Conference on Education	No discussion or recommendation on environment	No discussion or recommendation on environmental education
1990	National Policy on Natural Resources Conservation and Development	Focus on natural resources conservation and development	Recommendation on environmental awareness
1991	National Conference on Education	No discussion or recommendation on environment	No discussion or recommendation on environment
1991	National Planning Conference on Environmental Education	Focus on environmental education and development	Recommendation on environmental education across the education system
1994	The Revised National Policy on Education	Mention of environment education	A section on environmental education and recommendation to infuse it across the education system
1997	National Vision 2016	Mention of environment and sustainable development	Mention of public awareness
2003	National Development Plan 9	Mention of environment	Some sections giving attention to environmental education

National Policy on Natural Resources Conservation and Development, 1990

This policy is one of the early developments that created space for environmental education in the form of public environmental awareness. The policy came about as a result of collaboration between the Government of Botswana and the United Nations Environment Programme to develop the country's National Conservation Strategy. The process of formulating this policy was one of the longest in the history of policy formulation processes in the country as it took seven years. The policy process involved a

countrywide consultation on natural resource conservation issues. The report of this consultation identified five main environmental issues, namely:

a) Growing pressure on water resources,
b) Degradation of rangeland pasture resources,
c) Depletion of wood resources,
d) Over-use or exploitation of some veld products, and
e) Pollution of air, water, soil and vegetation resources. (Botswana Government 1990: 4)

Subsequently the policy identified "the increased education of and participation by all members of the society in improving the environment'' (Botswana Government, 1990: 3) as one of its strategic goals. To achieve different strategic conservation goals the policy spelt out measures to show government commitment to the national conservation strategy as

> … the expansion of facilities directed to improving environmental education, training and research activities, as well as to raising public awareness about environmental issues. It is envisaged that conservation education will be specifically included in school and teacher training college curricula. (Botswana Government, 1990: 7)

The leading implementing agency of this policy was the National Conservation Strategy Agency (now the Department of Environmental Affairs). The Agency was responsible for coordination of the environmental education strategy and its action plan. It operates through the National Environmental Education Committee formed by stakeholders in Government and NGOs. The main goal of environmental education outlined in the strategy is to increase public awareness and understanding of the environment and related issues in order to support sustainable development and respond to the environmental challenges facing Botswana. The National Conservation Strategy Agency works in collaboration with all government departments and environmental NGOs on matters regarding environment and education.

Although the policy is non-committal on introducing conservation education in the formal sectors, an environment conducive for change within the departments responsible for formal education to introduce conservation education was created. The policy further

gave hope to environmental education practitioners as it indicated that the government was receptive to change.

Revised National Policy on Education (RNPE)

The 1994 RNPE brought the debates about environmental education in the country to a different level. Initially the debates were about the inclusion of environmental education in the education policy and hence into the curriculum. This was accepted, but since 1994, the debates are about what it says and how it should be implemented and government's commitment to its implementation creating a new policy discourse which until this study has remained relatively unexamined. The 1994 RNPE was seen as an achievement for the environmental educators and non-governmental organizations in the country who were championing environmental education policy campaign. The aim of the education policy is to ensure that education obtained by Batswana contributes to national development which has been framed by sustainable development discourse. Education is also considered as a human right for all (see Terms of Reference for the 1992 Commission in appendix 6.1).

The objectives of the policy include raising educational standards at all levels, emphasizing science and technology in the educational system, improving partnerships between school and community in the development of education, and providing life-long education to all sectors of the population (Botswana Government, 1994: 5). Environmental education aims in Botswana are to develop a society that is aware of and concerned about the environment and its associated problems; a society which has the knowledge, skills, attitudes, motivation and commitment to work individually and collectively towards solving current problems and preventing new ones. The focus of this study is environmental education about which the RNPE states:

> a) There should be clearly defined national goals for environmental education and the Ministry of Education should draw up an action plan for their implementation,
> b) Environmental education has a key role in secondary education and should be incorporated into all subjects,

> c) An Education Officer/Coordinator should be appointed to the Department of Curriculum Development and Evaluation to oversee the introduction of environmental education,
> d) A curriculum panel for environmental education with representatives from all subject areas should be formed,
> e) Teachers must be trained in the methodologies, at both pre-service and in-service levels, for environmental education to ensure that learning results in attitudinal changes and citizen participation, and
> f) Educational institutions, starting with the teacher training institutions and the University of Botswana, should develop environmental ethos and set an example to the rest of the community. (Botswana Government, 1994: 25)

The above policy statements form the basis of environmental education implementation in Botswana. A detailed analysis of this statement is provided in chapter 7.

National Development Plans

The National Development Plans (NDP) gives direction to education developments to meet the challenges of socio-economic development. Issues of environmental awareness and economic growth and sustainability are highlighted in the plans. A number of National Development Plans call for sustainable development and education. National Development Plan 7 (NDP 7) identifies the importance of conservation of the environment. It states in part that

> Development and conservation must go hand in hand, or short-term improvements in the quality of life of the present generation will be won at the expense of future generations. Development is not sustainable without effective conservation policies. (Ministry of Finance and Develoment Planning, 1991: 93)

National Development Plan 8 calls for conservation strategies, education and public awareness as a key means of conserving and sustaining the country's scarce natural resources. NDP 9 complements all these and acknowledges environmental education and education for sustainable development as processes and methods that would facilitate understanding and awareness of dependence on limited natural resources and development of skills needed to sustainably utilize these resources. The plan acknowledges that "the environment is a cross-cutting issue, which needs to be integrated into the Government's mandate" (Ministry of Finance and Development Planning, 2003:

401). As Oakes (1997: 13) puts it "although the above national environmental initiatives and policies are encouraging, much work remains to be done in Botswana to achieve sustainable development and a strong, viable environmental ethos"

Vision 2016: Towards Prosperity for All

Following exhaustive consultations with people from all strata of the society and after much study, the Botswana Government published a policy document in 1997 entitled '*Vision 2016: Towards Prosperity for All'*. This policy sets out the government of Botswana's long-term vision of the achievement of *Kagisano (*social harmony). Vision 2016 addresses issues of the environment, natural resources development and utilization, population growth, poverty reduction and sustainable growth features prominently in the prosperity and productivity pillar of Vision 2016 (NCSCA, 2002: Es-2).

The Vision states in part that "Botswana will have a system of quality education that is able to adapt to the challenges and needs of the country as the world around us changes" (Botswana Government, 1997: 5). Environmental education is one of the 'quality education programmes' that would prepare citizens to adapt to the challenging needs of the country and changing world around us. This policy statement reinforces the already existing statement from the RNPE.

6.6.3 Role of government departments

The role of Department of Wildlife and National Parks (DWNP)

The Department of Wildlife and National Parks played a major role in what developed into environmental education today by way of introducing Wildlife Clubs in schools through its Conservation Education Unit, established in 1975 (Modise, 1978, see section 6.6.4). The conservation education programme started in 1973 through initial funding from the African Wildlife Leadership Foundation. This was later taken over by the Department of Wildlife and National Parks Conservation Education Unit (*ibid*). Conservation education, environmental education and natural resources education are terms that were used inter-changeably in the early 1980s within the Department of Wildlife and National Parks. Their ultimate goal is "to develop the skills and attitudes

necessary to understand and appreciate the inter-relatedness between man (*sic*), his (*sic*) culture and his(*sic*) biophysical surroundings" (Modise, 1978: 383).

The objectives of wildlife conservation education were as follows:

a) To promote a better understanding of the need to protect and use wisely all natural resources for the benefit of both present and future generations;
b) To create an awareness, interest and appreciation among all the people of Botswana concerning the economic, ecological, aesthetic and cultural value of their unique environmental heritage;
c) To develop a realization that mankind cannot continue in his old traditional ways of dealing with his environment. And that these attitudes, in the past, have led in part to the present environmental crisis;
d) To make people begin to understand that conservation is a responsibility of every-body – a responsibility to be shared and practiced day in and out throughout life; that this is a worldwide necessity which transcends political boundaries and man-made laws; and
e) To make people understand that at times it is necessary to preserve things for their unquantifiable benefits rather than destroy them for man's short-term economic gains. (Modise, 1978: 384)

The above objectives illustrate the wise-use, holistic, modernization and sustainability environmental discourses of that time. In addition the objectives espoused an intergenerational discourse related to natural resource use. Modise (1978: 385) continued to say, "realizing that the future prosperity of Botswana depends in many ways upon the attitudes the young develop towards their environment now", the Wildlife Conservation Education Unit launched a project called *Wildlife Clubs of Botswana* in schools (see section 6.6.5). The purpose of this project was to enable students to undertake specific educational and action projects in relation to their environment. The major objective of these clubs was "to awaken an awareness, interest and appreciation of the total environment among all the people of Botswana" (*ibid*).

To encourage and sustain the interest stimulated by the formation of the clubs in schools, the Wildlife Conservation Education Unit produced a booklet called ***Manual for the Wildlife Clubs of Botswana*** (see section 6.6.5), which describes the goals and objectives of the Wildlife Clubs. The Department of Wildlife and National Parks also initiated in-

service courses for teachers on methods and principles of conservation education. It was hoped that these courses would enable teachers to expand their class-room teaching "to include all of man's (*sic*) environment, when teaching subjects like art, language, mathematics, science, social studies etc" (*ibid.*: 386). Furthermore it was hoped that through this approach both the teacher and students would discover "some fascinating knowledge the environment can impart about man (*sic*), his (*sic*) environment and his (*sic*) relationship to it" (*ibid*).

Other ways of encouraging the teaching of conservation education included publications, wildlife clubs newsletters, public and school lectures/presentations, taking school groups on educational tours, and educational exhibitions and displays during public gatherings such as agricultural shows and trade fairs. The Department of Wildlife and National Parks also established educational parks to train teachers and educate children and the public. The efforts by the Botswana Government, through the Department of Wildlife and National Parks, contributed to public environmental awareness and to preparing the grounds for acceptance of environmental education into the formal education system (see section 6.6.1). Its major contribution continues to be evident through the activities of the Environmental Association of Wildlife Clubs (formerly Association of Wildlife Clubs of Botswana) (see sections 6.6.1 and 6.6.5).

6.6.4 National conferences

As per recommendation of the 1977 National Education Policy to review the education system periodically, the Ministry of Education planned and conducted a number of national consultative conferences on education before the 1992 Education Commission on Education. The conferences were conducted by means of a democratic process, affirming Botswana's nation principle of democracy. At the third consultative conference, it was reported that the participants appreciated the opportunity to present their views to the Ministry of Education and suggested that all participants including parents, civil servants, and business people "were able to express their views freely…. Many of them also appreciated the opportunity to use *Setswana* during discussions rather than being restricted to English" (Joel, 1989: 2). The National Conference reports did not

indicate that environmental education has been an issue for discussion during the deliberations (see Table 6.1).

The 1991 National Conference on Education for All influenced the genealogy of the education system in Botswana. The objectives of the conference were to enable dialogue on the present problems in meeting basic learning needs of the child, youth and adult and to explore realistic means of rapidly extending coverage and improving the quality of basic education in Botswana (Ministry of Education, 1991: 2) (see chapter 2). In the same year, 1991, the University of Botswana, the Kalahari Conservation Society and the Ministry of Education organized the review of the position of environmental education in all sectors of education in Botswana. The three organizations organized the 1991 National Environmental Education Planning Conference to draw up an action plan and generate recommendations for the future. The cooperative approach to environmental education policy-making process of these three organizations raised hope that it would "alert decision makers to the importance of environmental education to effect lasting developments" (Cantrell & Nganunu, 1992: 2). The detailed aims and purposes of this conference are provided in appendix 6.2. To ensure that the conference was well attended, 30 people were invited from each field of education including non-formal education. Invitations were made according to the following education field structure: primary, secondary education, tertiary, non-formal education and the environment (Stronkhost, 1991). In planning the conference, the joint committee deliberated on the following as their wishes for the conference programme and what could be incorporated in environmental education in future developments:

> Aims/objectives/guiding principles of environmental education; history of environmental education; political/educational objectives; the special approach needed in environmental education; and environmental education as multi-disciplinary. (Stronkhorst, 1991: 3)

The task of the joint committee was explained as 'organizing the conference, then running it and finally producing recommendations which could go to the decision-makers' (Kalahari Conservation Society, 1991: 1). Interestingly, one of the initial objectives of the conference was to 'investigate the restraints and resistance to

environmental education' (Kalahari Conservation Society, 1991: 1). This was later modified "to identify constraints to the improvement of environmental education and in each sector" (University of Botswana EECC, 1991). This implies that the conference organizers had realized that there was no restraints or resistance and hence the change of the discourse to identify constraints to the improvement of environmental education.

"The target audience of the conference was everyone involved in environmental education" (Kalahari Conservation Society, 1991: 2). However, there were contestations/tensions surrounding the participation discourse. It was not clear how the teachers were to be involved and evidence from the planning meeting shows that there was a debate among conference organizers specifically on whether teachers should be included. This aspect was to be addressed by each participant during homework. There was however consensus that attendance should be by invitation alone, for practical reasons (Kalahari Conservation Society, 1991). However, in its first press release, the Environmental Education Conference Committee (EECC) stated that the conference was organized to bring together all parties concerned with aspects of environmental education in Botswana. Participants were invited from all levels of formal and non-formal education in Botswana (Kalahari Conservation Society, Ministry of Education, & University of Botswana, 1991). The invitation of all people from all levels of education strengthened the participatory approach in the organization of the conference and ultimately the conference itself.

One of the main factors that strengthened the profile of the conference participation was that it drew representatives "from a wide spectrum of interests, scientists, conservationists, environmental scientists, policy makers, politicians and teachers'' (Cantrell & Nganunu, 1992: 4). A wide representation was also present from within the government, particularly the Ministry of Education's departments. Other key players in the development of environmental education in the country that were represented included the National Conservation Strategy Agency and the Department of Wildlife and National Parks. Among the non-governmental organizations were Chobe Wildlife Trust and Forestry Association of Botswana. The international community were also well

represented and included the United Nations Environment Programme, the World Conservation Union (IUCN) and the World Wide Fund for Nature (WWF). The Swedish International Development Agency (Sida), USAID and UNESCO supported the conference. Invitees included local resource persons, delegates from the United States of America and nearby African countries and included SADC structures.

The conference planning group had an ambitious programme. It included local, and global issues; the United Nations Environmental Programme; curriculum development; primary, secondary, and tertiary education; and how environmental education implementation should be coordinated. Although the University of Botswana, Kalahari Conservation Society and the Ministry of Education mainly responsible for organizing the planning conference, it included senior officers and executives from training institutions as well as non-governmental organizations.

The objectives of the conference were as follows:

- To provide background information on environmental education in general, the World Conservation Strategy, and environmental problems both worldwide and in Botswana,
- To review the position of environmental in all sectors of education in Botswana today and to generate recommendations for future,
- To identify constraints to the improvement of environmental education in each sector,
- To evaluate research needs, and
- To draft an action plan. (Cantrell & Nganunu, 1992: 2)

The 1991 Environmental Education Planning Conference was another milestone in the history of environmental education discourses in Botswana as a number of dignitaries reiterated the Botswana Government's commitment to environmental education. The then Assistant Minister of Finance, David Magang, "confirmed Government's commitment to achieve sustainable development in order to protect the environment for future generations" (Cantrell & Nganunu, 1992: 3). Another strong statement he made was that "short-term gain at the expense of a polluted and degraded environment would benefit no

one in the long run" (*ibid*). He defined the role of education as to produce skilled and dedicated citizens who are

> … willing to work individually and collectively to achieve and maintain a dynamic equilibrium between the quality of life and the environment. This, he stressed requires the combined and coordinated effort of many governmental and non governmental organizations. (Cantrell & Nganunu, 1992: 3)

The conference provided further impetus to the growth of environmental education discourse in Botswana. The commitment made by the Assistant Minister of Finance during the conference may have affected functions in decision-making structures of the Ministry of Education and gave hope to lobbyists that environmental education would be incorporated into the education system. The Minister's remarks during the conference showed rhetorical political will by the Government. The statement also implies power relations in the genealogy of environmental education policy.

A further commitment demonstrating political rhetoric echoed by the then Minister of Education, was stated as follows

> Education is one of the key components in the National Conservation Strategy and this conference is a first initiative to start the planning process for the environmental education. Here we refer not only to environmental education for school children, but for the whole population - a task that can only be achieved through a joint effort of both Government and Non-Government Organizations. Cantrell & Nganunu 1992: 1)

A major objective of the Conference was therefore to bring together all those who have a role to play in the provision of environmental education in Botswana. The Minister of Education made a commitment at the conference that his ministry

> … regards environmental education as a priority issue and the recommendations from this Conference will be most useful in drawing up a plan of action. My Ministry accepts that it has an important role in coordinating and promoting environmental education in the country. This includes incorporating and strengthening environmental education at all levels of the education system and

> working closely with other organizations, governmental and non-governmental, to provide environmental education for all. (cited in Cantrell & Nganunu, 1992: 1)

This was a powerful commitment as it highlighted environmental education as a priority issue, as well as accepted the responsibility to coordinate, promote, and strengthen environmental education in the country at all levels. Participation of the Ministry of Education in organizing the conference in partnership with non-government organizations was an explicit testimony to its commitment educational reform. The Ministry of Education has the access to, overall authority and responsibility for the whole education system. Interestingly, what the Minister promised to the conference delegates became part of the recommendations that ultimately became part of the Revised National Policy on Education, indicating the influence of public statements by senior politicians in processes of policy development.

At the end of the conference participants made a number of recommendations. The recommendations covered primary, secondary, tertiary and non-formal education. Some of the recommendations required immediate implementation without a mandate from education policy while others required policy backup for legitimation and accountability. For instance it was felt that NGOs could engage in research projects and produce support material while schools could engage in community projects and educators could infuse environmental issues into the existing courses. Among the numerous recommendations were:

- Establishment of a formal structure to coordinate the planning and implementation of environmental education,
- Creation of an umbrella body with representatives from a wide range of both government and non-governmental organizations to advise on policy issues and provide direction and orientation for environmental education,
- Establishment of an Environmental Education Coordinator office with staff to facilitate flow of information between the groups and organizations concerned,
- Changes in curricular and examinations, the introduction of new courses at tertiary level and to legislation, and
- A national action plan and changing personal attitudes as well as imparting knowledge. (Cantrell & Nganunu, 1992: 19)

The recommendations from the conference were presented to the Education Commission which synthesized and accepted some of them as part of its recommendations to the Government (see conference recommendations in appendix 6.3). The Commission used its discretion to select what it thought was core amongst the 58 recommendations. The Government accepted the recommendations of the Commission on environmental education with little modifications and they became part of the 1994 Revised National Policy on Education. The conferences and national policies show continuities and discontinuities in the genealogy of environmental education in Botswana as illustrated in Table 6.1.

6.6.5 The role of Non-Governmental Organizations (NGOs)

While Government has created a conducive environment through its democratic consultative machinery, acts, policies and by organizing national consultative conferences and establishing commissions, NGOs have also played a vital role by specifically advocating the integration of environmental education into the education policy. In Botswana NGOs are some of the key players in environmental education policy development and implementation. Non-governmental organizations such as the Association of Environmental Clubs of Botswana, Kalahari Conservation Society, Somarelang Tikologo and others operating in and outside regular school policy-making procedures interact with all levels of a school administration, teacher training, etc. Their role in environmental education policy processes included the following:

- Support and sponsoring endeavors related to teacher education, epistemological innovation, pedagogy, etc.;
- Creating new forums to exert pressure for legislation to promote environmental education in schools; and
- Making recommendations for the improvement of teaching, and in-service training.

Making recommendations were consistent with previous recommendations included in the plethora of reports from NGOs, etc. in the 1980s and 1990s.

The Association of Environmental Clubs of Botswana (former Association of Wildlife Clubs of Botswana (AWCB) played a significant role in the history of environmental education in Botswana (see chapter 2 and section 6.6.1 and 6.6.4). At its annual general meeting (17 – 21 August 1998), the Association's chairperson proposed the following:

> AWCB believes environmental education must be a core and compulsory subject in our senior secondary schools while infusion across all subjects is done. In all colleges of education, environmental education must also be offered as a core subject as well as at the University of Botswana faculty of education. At junior school and primary school, environmental education must be infused across all subjects. All these considerations have been taken looking at the maturity of the learners. (Mbaiwa, 1998: 4)

In addition to these proposals, he echoed the concern of the AWCB regarding the slow implementation of environmental education in Botswana. Apart from workshops and seminars, the training of environmental education teachers appeared to be delayed and long overdue. The Association was also worried about the absence of an environmental education panel and the Environmental Education Coordinator who might speed up and facilitate environmental education implementation in Botswana (Mbaiwa, 1998).

The Association was the first in the country to think about establishing an Environmental Education centre for both teachers and students training. Although this did not materialize due to financial constraints it was a positive development in the history of environmental education in Botswana (Kupaza, 1990). The idea was supported by Department of Wildlife and National Parks and Kalahari Conservation Society. The only support the Association received for the project was a vehicle donated by the European Economic Community (now EU), funding for the Clubs Advisor and financial support by Department of Wildlife and National Parks to run annual club advisers' workshops (see chapter 9).

Another key role player in environmental education policy discourses in Botswana is the Kalahari Conservation Society. This is one of the early NGOs involved in promoting

environmental education in Botswana. Its aim was to promote knowledge of Botswana's rich wildlife resource and its environment through education and publicity. Its education unit produces and distributes materials on various conservation and environmental topics (IUCN, 1990).

The Kalahari Conservation Society's education programme was directed towards primary and secondary schools students, youth, teachers, wildlife clubs, decision-makers and the general public. The education material produced included videos, newsletters, fact sheets, books and posters. The videos were loaned free to members, schools and other non-governmental organizations. It also supported other non-governmental organizations and government departments. Kalahari Conservation Society has been actively involved in a number of environmental education initiatives through organizing and participating at workshops, symposia, talks and addressing public meetings. The society was committed to promoting environmental awareness. Its programmes and projects complemented the government's effort in promoting environmental education in the country.

In addition to the opportunities created by the international environmental community, agreements and events, the government and national non-governmental organizations, there were other players in the genealogy of environmental education policy in Botswana. Among these are Somarelang Tikologo and the Mokoldi Wildlife Foundation. The two organizations were born in the early 1990s when the momentum to push for the integration of environmental education in to the national curriculum was already good. However, they contributed immensely to the development and implementation of the policy. As soon as the government accepted the policy and environmental education was made an integral part of the school curriculum these organizations started the implementation process. As early as February 1994, before the National Assembly accepted the 1992 Commission's recommendation to introduce environmental education into the curriculum, Mokoldi Wildlife Foundation opened an Education Centre solely for environmental education. This was a positive development illustrating the commitment of civil society to environmental education. Somarelang Tikologo, which was established

later in 1994, was instrumental in materials production for schools and was responsible for a strong advocacy programme for public awareness particularly in urban settings.

These organizations facilitated teacher training, materials production and the running of short courses for teachers and students. Board members of these organizations played important roles in different forums such as organizing the 1991 planning conference while some made group or individuals submissions to the 1992 Presidential Commission on Education.

The University of Botswana, a parastatal, through its Faculty of Education also played an important role in influencing policy construction. The Faculty of Education personnel together with other organizations formed the first Environmental Education Reference Committee that organized the first Environmental Education Planning Conference in 1991. The Faculty of Education also made a submission to the 1992 Presidential Commission on Education arguing for the incorporation of environmental education into the national curriculum. The Vice Chancellor described the 1991 Environmental Education Planning Conference as "a truly momentous occasion for the University of Botswana, especially since the country had not long ago adopted a policy on conservation" (Cantrell & Nganunu 1992: 3). He acknowledged that "the University had an important role to play in interacting with society to tackle the burning issues of the day" (*ibid*).

6.7 Summary

This chapter has provided insight into the genesis of environmental education policy in Botswana examining both local and international factors (see also chapter 2) that contributed to education policy discourses. Since the 1990s changes in the policy themes and of environment in education policy discourse were increasingly articulated in policy documents. An examination of the public discourse on education shows that the education system has undergone a series of changes and restructuring aimed at enhancing social, economic, and political development. At independence, the Botswana government was faced with major problems that needed immediate attention. One such problem was

the need to produce educated human resources. There was also the need to use education to address the social, economic and political needs of the nation. The 1977 National Education Policy recommended free education for all. The implementation of this recommendation opened up opportunities for enabling all children to be exposed to educational innovations creating a working platform for environmental education to be taught to children once in place.

Both the government, through commissions and conferences, and the NGOs drove education policy discourses by lobbying, and through practical activities including materials production and conference organization. Partnerships between local NGOs and government in environmental education policy processes constitute particular power relationships that have shaped the policy emergence and policy discourse, and associated pedagogical practices in schools (see chapters 10 and 11). The international community and international events played a key role in influencing decisions to introduce environmental education into Botswana's education system (see chapter 2). Both multi-lateral and bi-lateral cooperation had a powerful effect on environmental education discourses in Botswana. Both local and international role players exercised their power to influence government to accept the introduction of environmental education into the curriculum. The power of international organizations was based on new and convincing knowledge about the environment and the need for a cooperative approach to educational and global socio-ecological issues (see section 6.5).

A post-structural approach to education policy discourses articulated in the policy documents shows variations in the conceptualizations of the role of environmental education in national development. Some documents and conferences paid little attention to environmental education (as shown in table 6.1). The introduction of environmental issues in the education policy discourse was influenced by the focus of other factors including the prevailing discourse orchestrated by environmental organizations. A number of factors contributed to the shaping of environmental education policy in Botswana. For instance, ecological factors, the 1991 Environmental Education National Planning Conference, the 1992 Earth Summit, and the 1992 Presidential Commission on

National Education played an important role in influencing the government to accept the introduction of environmental education into the education policy and into the national curriculum. Above all, the role played by the Conservation Education Unit of the Department of Wildlife and National Parks and non-governmental organizations have greatly influenced policy processes**.**

Having traced the history of environmental education and policy in Botswana, I now focus on the specific policy statement on environmental education in the RNPE (see section 6.6.2) in the next chapter, thereby extending and providing further depth to the genealogy of environmental education policy in Botswana through detailed critical discourse analysis.

CHAPTER 7
DEEPENING POLICY INTERPRETATIONS THROUGH CRITICAL DISCOURSE ANALYSIS

7.1 Introduction

A construction of the genealogy of environmental education policy in Botswana in the previous chapter has revealed that the 1994 Revised National Policy on Education marked a complete shift in the way environmental education was recognised in the education system. The purpose of education policy documents such as the Revised National Policy on Education is to provide policy implementers and readers, that is, curriculum designers and teachers and the general audience, with guidelines in relation to introducing and teaching environmental education in schools and higher learning institutions. As a state-produced educational policy document it presents a complex challenge to readers as it does not only focus on educational context but covers political, economic and historical contexts. Therefore, in reading policy documents, readers should be cautious of these dimensions in policy texts and what they imply in practice. A critical discourse analysis has been deployed in this chapter in an attempt to arrive at a deeper understanding of policy text.

The analysis is based on the premise that policy reading requires an understanding of the dynamics of the various elements of the social structure and their intersections in the context of history. Secondly, policy documents such as the RNPE are discursive embodiments of the balance of these dynamics as they underlie social relations at particular points in time. Thirdly, policies contain a highly politicized symbolic system that requires unpacking. The meanings embedded in policy texts, which is the focus of this study, requires decoding as they do not only constitute political, cultural, and economic expectations that need to be revealed but educational goals and epistemologies that require implementers' understanding. The fourth premise is that education policy development is directly or indirectly influenced by global and regional context (see chapters 2, 3 and 6). As mentioned in the broader context of this research (see chapter 2) policy is related to international agreements and collaboration. Through such global

cooperation nation-states enter into obligations to develop policies that would ensure that citizens' rights and entitlements are maintained. Therefore in subjecting policy text to critical discourse analysis (CDA) the intention is to reveal intertextuality embedded in statements and language used. This chapter provides a critical discourse analysis of the education policy statement on environmental education as contained in the Revised National Policy on Education document no.2 of 1994 (see section 6.6.2 and box 7.1). It opens up an opportunity for understanding the insights provided in all the chapters that follow (as well as chapters 2, 3 and 6). As indicated in chapter 5, this critical analysis of policy discourse draws on Fairclough's model (1992) (see section 5.5.2).

7.2 Analysis of the broad policy statements from RNPE

This analysis is based on education policy change incorporating environmental education focusing on properties of texts, the production, distribution, and consumption of texts, socio-cognitive processes of producing and interpreting texts, social practice in various institutions and the relationship of social practice to power relations (Fairclough, 1992) (see figure 5.1). Policy analysis involves text-based interpretations of what the author intended to express. In this sense "nothing can be said about an author's intentions apart from various features of the text itself and the context in which it is interpreted" (Olssen et al. 2004: 61). Critical discourse analysis is provided as complementary to, and as part of the genealogical approach and the exploration of governmentality in this policy research. Education policy discourse does not only refer to the meaning of language but also to the real effects of language-use, that is, to the materiality of language. Critical discourse analysis opens up opportunities for exploration of the concept of governmentality to establish how policy discourse materially affects teachers and their practice. This analysis is limited to various features of the text and the context in which it was created. Below (box 7.1) is a list of policy statements analyzed in the subsequent paragraphs and section in this chapter.

Box 7.1 RNPE Statements subjected to critical discourse analysis

The policy text under scrutiny reads as follows:

a) There should be clearly defined national goals for environmental education and the Ministry of Education should draw up an action plan for their implementation

b) Environmental education has a key role to play in secondary education and should be incorporated into all subjects

c) An Education Officer/Coordinator should be appointed to the Department of Curriculum Development and Evaluation to oversee the introduction of environmental education

d) A curriculum panel for environmental education with representatives from all subject areas should be formed

e) Teachers must be trained in the methodologies, at both pre-service and in-service levels, for environmental education to ensure that learning results in attitudinal changes and citizen participation

f) Educational institutions, starting with the teacher training institutions and the University of Botswana, should develop an environmental ethos and set an example to the rest of the community.

(RNPE accepted recommendation no. 44 of 1994: 25).

To aid critical analysis of the above policy text, table 7.1 below has been constructed to categorise the dimensions in figure 5.1. To facilitate a closer analysis of the texts, various linguistic tools are employed "to provide a way of 'denaturalizing' and reading it as a discursive practice" (Cormack & Green, 2000: 13).

Table 7.1 Critical discourse analysis dimensions

Dimension	Consideration
Text – description (i.e. text analysis)	The focus of textual analysis is the Revised National Policy on Education. This document contains the guidelines for teachers, curriculum developers, educators and practitioners to infuse environmental education across the curriculum (see box 7.1).
Discourse practice – process of production (see Chapter 6) and interpretation (processing analysis)	This document is the official and principal guideline produced by the Ministry of Education on the introduction of environmental education to be consumed in a variety of ways. It is distributed to every school, education office, libraries and regional government office and higher learning institutes to be read. 'It assumes and constitutes particular relations between teachers and headmasters; teachers and inspectors; teachers and students' (Cormack & Green, 2000: 12). It contains intertextual references to other learning areas. It not only instructs teachers, it seeks to commit institutions of higher

	learning such as the university to develop an environmental ethos which is exemplary to the rest of the community.
Social practice – situational, institutional and societal (explanation) (i.e. social analysis)	'The producers and consumers of this document operate in a state-wide education bureaucracy struggling to assert its legitimacy and raise the status of teachers (an impetus for collusion between teachers and the bureaucracy) (*ibid*.p12). Botswana like some of the countries in the south is experiencing rapid population and industrial growth. These changes bring with them socio-economic and political challenges that impact on the natural resources base. Environmental problems have 'social, economic and cultural roots and therefore there is need to act primarily on the values, attitudes and behaviours of everyone in respect of the environment. Environmental education has to go beyond awareness and comprehension to the formation of the right values and attitudes and so lead to behavioural changes (Report on the National Commission on Education, 1993) (see chapter 6). As the UN Decade of Education for Sustainable Development has been launched (UNESCO, 2005), there is dire need to focus on education policies and practices to ensure that long-term vision of sustaining the environment and producing well-educated and informed citizens is achieved. Environmental concerns have become a political issue; the corporate world, civic societies and governments are engaged in rhetorical and practical endeavours to sustain the environment (see chapter 2). This brief analysis is expanded below in section 7.3 to 7.6

After Cormack and Green (2000: 12)

7.3 The Analysis (Textual analysis)

The policy is in six-point format (i.e. points (a) to (f) – see box 7.1) and the Department of Curriculum Development and Evaluation is identified as the main implementing agency. In the **first point** (a) on environmental education, the policy proposes national goals for environmental education and an action plan for their implementation. The point reads as follows

> There should be clearly defined *national goals* for environmental education and the *Ministry of Education* should draw up an *action plan* for their implementation.

The policy text focuses on the national goals and action plans for the implementation of environmental education by the Ministry of Education. It identifies concern with lack of definition of national goals on environmental education and the lack of action plans to implement the goals. It suggests the beneficiary of the goals and action plans being the nation. However, the text leaves the reader to work out what the national goals on environmental education are and how they are going to be defined and what these will be based on and how they will be constructed. This objectifies the national goals as a focal

point in the policy processes without a prescription or guideline for their formulation. The text identifies the Ministry of Education as the implementing agent charged with the responsibility to draw up the action plans for the implementation of environmental education. The text does not suggest how the action plans for the implementation of environmental education will be drawn up. It does not suggest any particular focus on education categories or levels. It leaves the reader to work out whether the national goals will cut across the curriculum encompassing formal, non-formal or informal sectors (see chapters 2 and 6).

The text illustrates a significant shift in relation to education policy discourse and reflects hope for changing the status of environmental education in the national curriculum. It illustrates acceptance of environmental education in a new social democratic liberal discourse. This is demonstrated by the last part of the statement that says 'and the *Ministry of Education* should draw up an *action plan* for their implementation'. This marks a significant shift from the 1977 National Education Policy that did not incorporate environmental education. As Janks (1997: 335) argues

> … the specific hybridity of this text provides evidence for values in transition. It shows the tenancy of existing discourses at work in society and the struggle of alternative discourses to emerge. Textual instantiations capture the clash of discourses and demonstrate ideological forces at work to produce a different hegemony.

In terms of ideational meaning the clause '*the Ministry of Education should draw up an action plan'* is transitive and imperative; it signifies the process of the Ministry of Education in drawing up an action plan. It implies that policy agents are obliged to work towards its accomplishment without fail. The clause is also authoritative. As Fairclough (1992: 76) puts it "The writer-reader relationship here is that of between someone telling what the case is in no certain terms, and someone being told; these are the two subject positions set up in the clause". Its authoritative nature implies asymmetrical power relations in favour of the text author, which is the state or government. The reader is constituted as a subject of the text's power effect, and appears to be expected to play a reactive role in relation to the policy statement.

The **second point** reads:

> Environmental education has a key role in secondary education and should be incorporated into all subjects.

In this second statement, the policy text recognises environmental education having a key role in secondary education. The phrase 'has a key role' emphasises the relational subjectivity and value of environmental education in secondary education. This is a shift from the previous education policy discourse where environmental education was not mentioned at all levels to an education policy discourse where environmental education is identified as key to the education system. This shift manifests itself as what Janks (1997: 334) terms a 'discoursal shift' from a purely anthropocentric paradigm to a more eco-centric orientation determined to green the curriculum. Previous education policy was concerned with human development, human resources and training without a mention of conservation or preservation of natural resources on which people depend. However, it leaves the reader wondering why other levels of education such as primary and tertiary institutions are not mentioned. It also leaves the reader to work out the criteria used to leave out these levels of education and the non-formal education sector. The text is structured around secondary education, contradicting the first statement that calls for the definition of national goals and action plans for environmental education implementation. This text suggests that environmental education be incorporated into all subjects. The text leaves potential for uncertainty and contestation among education practitioners including teachers. Those who may feel sidelined or excluded by this text may 'protest or resist' policy implementation.

The statement emphasizes incorporation of environmental education into all subjects by the action verb 'should'. This implies an element of compulsion which is counter to modern liberal democracy. The deduction here is that the author is under multiple obligations to ensure that environmental education is incorporated into the national education system. The obligations are in response to international agreements such the UN Agenda 21 (see sections 2.2 and 6.5.3) and local pressure from non-governmental organisations such Kalahari Conservation Society and Association of Environmental Clubs of Botswana (AECB) (see sections 2.3 and 6.6.4). The emphasis to incorporate

environmental education into all the subjects also leaves the reader to work out or imagine the magnitude of the government's commitment to incorporate environmental education. Moreover, the text specifies secondary education, leaving out primary education where the majority of the learners are found. It polarizes the two education levels creating potential tensions between levels of learning institutions. In terms of interpretation the reader would be tempted to think that government accords more value to secondary education over primary education. Therefore environmental education attention and resources would be asymmetrically distributed in favour of the secondary level in the implementation of the policy.

The **third point** reads

> An Education Officer/Coordinator should be appointed to the Department of Curriculum Development and Evaluation to oversee the introduction of environmental education

The policy recognises the need to have 'an Education Officer/Coordinator to oversee the introduction of environmental education'. It demonstrates a power relation from the policy designer to direct implementers and assumes action will follow. The text stipulates the level/position of the officer to be appointed and the Department under which the coordination would be instituted. The text does not clarify the calibre of the appointee, qualifications, experience or competences required from the appointee. It leaves the reader to work out what would be the requirements for the officer responsible for overseeing the introduction of environmental education. The appointment of an Education Officer to oversee the introduction of environmental education is another indication of the education policy discourse shift to accommodate environmental education, after the government's commitment in the revised education policy processes. It is a further indication of political will in the genealogy of environmental education policy discourse in Botswana.

The clause "should be appointed" indicates an authoritative emphasis and points to the importance attached to environmental education coordination. It confirm Kogan's description of policy as "the authoritative allocation of value statements of prescriptive

intent" (Kogan, 1995: 55). The text implies the exercise of political power of the text author by introducing an Environmental Education Officer to the Department of Curriculum and Evaluation to oversee the coordination of environmental education.

The **fourth point** of the policy text reads

> A curriculum panel for environmental education with representatives from all subject areas should be formed.

The above text suggests the establishment of a curriculum panel with representatives from all subjects. It assumes that environmental education is an all-encompassing approach that is multi-disciplinary and which needs input from across the curriculum. It leaves the reader to work out the number of subjects in the curriculum and whether a productive panel can be constituted with that membership. The text is silent on whether the panel would be for secondary education curriculum or for the national curriculum. It is also silent on panel members' competencies in playing an advisory role on policy and environmental education implementation. It does not specify where the panel would be housed as is the case with the appointment of the Education Officer. The word 'representatives' leaves the reader with an option to decide who would be the appropriate people to serve in the panel. The possibility of a panel composed of 'representatives' who truly add value to the role of the panel is not guaranteed. The clause "should be formed" implies an authoritative imperative in the formation of the panel. It leaves policy implementers with no option but to implement the prescription. The emphasis indicates the directive nature of the policy text forcing policy implementers to oblige. However, it leaves it open for the reader or policy agent to work out when the panel should be formed.

The **fifth point** of the policy text reads

> Teachers must be **trained** in the methodologies at both pre-service and in-service levels for environmental education to ensure that learning **results** in attitudinal changes and citizen participation.

The text here recognizes the need for teacher training in pedagogies that would enable teachers to teach environmental education (see chapter 10). It also reflects an assumption

that teachers need such training. It stipulates the levels at which teachers should receive training as being both pre-service and in-service. The text assumes that teachers have the subject content and what they need is training on methodologies 'to ensure learning results in attitudinal changes and citizen participation'. The text highlights attitudinal change and citizen participation as preferred outcomes for environmental education. It shows the emergence of *new instrumental knowledge* (Darier, 1999), which is "attitudinal change and citizen participation" in environmental education policy discourses (see section 11.2.1). It however, does not stipulate how attitudinal change and citizen participation are going to be enhanced pedagogically, leaving this to the reader to ponder.

The text leaves the reader to work out whether teacher training institutions and teacher trainers have the capacity to train teachers in environmental education methodologies. It implies that trainers posses the necessary environmental education pedagogical competencies to educate teachers and teacher trainees. It assumes that the learning would result in attitudinal changes and citizen participation. The use of the words '**results in**' indicates a linear causal assumption by policy designers. Moreover, it assumes that learning results in attitudinal changes, making another assumption about the behavioural change process (see chapter 10).

Furthermore the policy text leaves the reader to figure out whether the attitudinal changes are positive or negative to the environment. However, the text recognises the influence of environmental education in bringing about attitudinal changes. It is another shift from previous educational policy discourse that neglected environmental education. Use of an action verb such as ***must*** marks obligation and imperativeness of the policy text leaving the policy implementer with no option but to work towards fulfilling policy directive. This general statement exposes policy text to multiple interpretations as the readers, particularly teachers, would recontextualize the text based on their experiences and knowledge. Bernstein (1996) explains that recontextualisation takes place at the official recontextualisation field, professional recontextualisation field and reproduction field (that is, at all levels). Unpacking of policy text challenges teachers and teacher educators

to reflectively exercise disciplinary power techniques within the discursive practices in the field of education and schooling.

The **sixth point** reads

> Educational institutions, starting with the teacher training institutions and the University of Botswana, should develop an environmental ethos and set an example to the rest of the community.

The text makes an obligatory ruling that 'educational institutions, starting with the teacher training institutions and the University of Botswana, should develop an environmental ethos and set an example to the rest of the community'. This pro-active statement illustrates the text author's commitment to educational policy change. The text legitimizes the development of an environmental ethos in educational institutions. The text pinpoints the University of Botswana as a leading teacher training institution to develop an environmental ethos exemplary to the rest of the community. Moreover the text recognises and suggests the link between the teacher training institutions and the community. Although the policy text acknowledges that educational institutions can be role models for an environmental ethos for the community, it leaves the reader wondering whether institutions have the capacity and capability to do this. The text constructs the University of Botswana with both material and mental processes to role-play environmental ethos to the rest of the community. It assumes institutions such as the University of Botswana have the capacity and ability to demonstrate an environmental ethos. It does not allow for multiple views on 'environmental ethos' and assumes societal consensus, in defining such an ethos, and places this power in the hands of an academic institution (e.g. the university).

7.3.1 Transitivity analysis based on RNPE statement on environmental education

Another language-related form of critically analysing text is **transitivity** analysis (table 7.2) that looks for "patterns that emerge across these linguistic functions which confirm or contradict one another" (Janks, 1997: 335). Transitivity specifies the different types of processes that are recognised in the language and the structures by which they are expressed. The identified processes from the RNPE statement include the following:

- Material processes, that is types of doing by actors to achieve a goal;

- Mental processes, that is use of senses, e.g. thinking, feeling, perceiving, etc.;
- Relational processes, that is types of being, e.g. 'is', 'has', etc.; and
- Behavioural processes, that is types of behaving, e.g. drawing, dreaming, smiling, etc. (Janks, 1997).

Table 7.2 indicates the deduced activity from statement and the process implied or recognised in the statement. The last column indicates a possible or an assumed actor who is either nominally or passively linguistically silenced in the text. Transitivity analysis can assist in establishing power relations within the discourse.

Table 7.2 Transitivity process in the RNPE clauses on EE

Policy points	Activity	Process	Who (Assumed actor)
a	Defined	Material	Ministry of Education (MoE)
	Draw	Material	Ministry of Education
	Implementation	Behavioural	Teachers
b	Has	Relational	Environmental education
	Incorporated	Material	Teachers
c	Appointed	Material	Ministry of Education
	Oversee	Behavioural	Environmental Education officer - Curriculum Development and Evaluation
	The introduction	Mental	Environmental Education Officer
d	Representation	Relational	Curriculum Development and Evaluation/Ministry of Education
	Formed	Material	Curriculum Development and Evaluation and Ministry of Education
e	Trained	Material	Teacher Training Institutions/Teachers
	To ensure	Material	Teacher Training Institutions/Teachers
	Learning	Mental	Teacher Training Institutions/Teachers/Learners
	Attitudinal change	Mental	Teacher Training Institutions/Teachers/learners
	Participation	Material	Teacher Training Institutions/Teachers /General public
f	Starting	Material	Training Institutions/Teachers
	Training	Material	Training Institutions/Teachers
	Develop	Mental	Training Institutions/Teachers
	Set	Material	Training Institutions/Teachers

After Janks (1997: 337)

The transitivity analysis in table 7.2 shows that policy recipients or actors are specified in some cases while generally the Ministry of Education and its department are the assumed key players constructed with material processes implying that it possesses more power. Teacher training institutions and the Ministry of Education (the assumption is that the activities are delegated to its implementing departments) are constructed with predominantly material and mental processes. This construction implies that the Ministry of Education and teacher training institutions are able to implement the propositions. Teacher training institutions and teachers are constructed with both material and mental processes. The transitivity analysis suggests that they are able to effect change exercising their power relations within the policy discourse. Learners are constructed with predominantly mental processes. That is, they are expected to "learn" and "change their attitudes". Moreover, the transitivity analysis reveals that the source of agency (from where power relations operate) is obscured. That is it is not revealed to the reader. It is left to the reader, including teachers, and teacher educators, to work out the action that they are required or obliged to take. It is also left to the reader to establish the role of the Ministry of Education as well as which institutions are directed to carry out some duties in the implementation of environmental education. For instance, a statement reading as follows "Environmental education has a key role in secondary education and should be incorporated into all subjects" carries both relational and material processes as revealed by transitivity analysis, but it does not say who should incorporate it into all subjects. It is only through reading and interpretation that the reader would allocate this responsibility to either him/herself or a particular agent within the education system (such as a curriculum developer, textbook author or teacher or all of these).

In this type of linguistic approach to text analysis, it is clear that it is not only by reading policy texts that the reader can gain deeper insights into the policy discourse. There are other social and political conditions that affect textual production that the transitivity analysis can expose. The material construction of the Ministry of Education and its departments indicate policy-power relations within the education policy discourse. The policy document is written as an official commitment to the introduction and implementation of environmental education. Through text, the Government is committing

its material resources to the proposition. It has a political obligation to ensure that policies are translated into action and can only realize that through the exercise of legitimized power (refer to excerpt from the minister's speech in the 1991 Environmental Education Planning Conference mentioned in section 6.6.3). Transitivity analysis also constructs teachers and officers with material processes because they are under government jurisdiction, that is, as its employees they are bound by their employment terms to implement government policies. They have government resources at their disposal to implement the policy. The learners are constructed with mental processes as the contextual social practice and expectation places them at the receiving end, to learn and ultimately change their behaviour towards the environment (see section 8.3). Teachers are either constructed or positioned as mediators and change agents responsible for change in learners' behaviour. Through this they become subject to new forms of governmentality (see chapters 4, 10 and 11).

7.3.2 Modality analysis based on RNPE statement on Environmental Education

Modality is another aspect of text analysis that can be applied to critical policy analysis. As Fairclough (1992: 236) puts it

> The objective is to determine patterns in the text in the degree of affinity expressed with propositions through modality. A major concern is to assess the relative import of modality features for (a) social relations in the discourse and (b) controlling representations of reality.

The most common modal verb used in the text under scrutiny is **'should'** followed by **'must'**. These verbs are used in the following statements:

> a) There **should** be clearly defined national goals … Ministry of Education **should** draw up an action plan …
> b) Environmental education has … and **should** be incorporated into all subjects
> c) An Education Officer/Coordinator **should** be appointed …
> d) A curriculum panel … **should** be formed
> e) Teachers **must** be trained in the methodologies, …
> f) Educational institutions, … **should** develop an environmental ethos …
> RNPE (1994: 25-6)

The use of modal verbs in the text implies the degree of commitment and determination by the policy designer and imposes what could be said to be the 'indisputable truth'. It does this by sounding instructive and obligatory in an imperative mood inviting compliance from the recipients. The modal verbs such as **should** and **must** express close affinity to the proposition and reflect power relations. They limits the readers' creative talents of deciding what is right or appropriate and "implies some form of power imbalance" (Fairclough, 1992: 159). They are authoritative manifesting an asymmetrical exercise of power within the discourse. Such type of assumptions about governing may breed resistance within educational discourse as the reality may be that policy text recipients read it with their pre-conceived ideas and may impose their own contextual meanings which could be contradictory to what the policy makers intend to do (see section 3.9). However, modality in critical discourse analysis exposes social relations and the reality represented in discourse. It is an important aspect of reading policy texts and Fairclough (1992: 160) has observed that

> Modality is a major dimension of discourse and more central and pervasive than it has traditionally been taken to be. One measure of its social importance is the extent to which the modality of propositions is contested and open to struggle and transformation.

7.4 Interpretation: Analysing the processes of production and reception

The National Commission on Education produced the text between 1992 and 1993 during the public hearings (see chapter 6). The text was produced based on public concerns and the National Education Policy of 1977, which came about as a result of the National Commission on Education in 1976. It was an outcome of a wide consultation internally and internationally. One of the 1992 National Education Commission's terms of reference reads 'to review the current education system and its relevance; and identify problems and strategies for its further development in the context of Botswana's changing and complex economy' (see appendix 6.1) (Botswana Government, 1993: pv). These terms of reference led to the production of environmental education policy as the Commission on Education, through the inputs from institutional and public consultation, reviewed the education system and its relevance to the changing and complex economy.

The education policy text constructs environmental education policy discourse within the Revised National Policy on Education and not within a framework of environmental concerns or rights. Environmental concerns were considered more directly in the National Policy on Natural Resources Conservation and Development (NPNRCD) of 1990 (see section 6.6.2). The concerns included

> … the expansion of facilities directed to improving environmental education, training and research activities, as well as to raising public awareness about environmental issues. It is envisaged that conservation education will be specifically included in school and teacher training college curricula. (Botswana Government, 1990: 1)

The last part of the above statement is constructed with uncertainty implying that the Ministry of Local Government and Land is unable to implement the proposition. The text suggests that the decision to include conservation education in the curriculum falls outside the powers of National Policy on Natural Resources Conservation and Development, with the Ministry of Education. The text observes the government protocol of not issuing directives to another ministry (the Ministry of Education) to include conservation education in schools and teacher training colleges. What is not included in the Natural Policy on Resources Conservation and Development (NPNRCD) is the desire to promote the 'right' environmental values and attitudinal change, defining the national goals and drawing up of an action plan as well as developing an environmental ethos. However, the RNPE on environmental education and the Natural Policy on Resources Conservation and Development both highlight teacher training, curriculum development and public/community environmental awareness and ethos. These are constructed as the core of the two policies' discourses. Both policies complement each other and reflect a shift towards incorporating environmentalism in the education system. The policy on environmental education was produced at a time when there were both international and national developments such as the 1992 Rio Summit, the 1990 Natural Policy on Resources Conservation and Development and the 1991 Planning Conference on Environmental Education. The commission was established at a time when all these intertextual developments were taking place and these historically constituted contextual

developments influenced a decision to include environmental education in the revised education policy (see sections 2.2 and 6.5.3).

The text is produced for a complex array of readers including curriculum designers, teacher trainers, teachers, education officers, politicians and parents. All these readers have their own interpretation of environmental education and how it could be implemented (see chapters 9 and 10). The interpretations and understanding would be influenced by a number of variables including both cultural and historical practices (see sections 2.2 and 3.5). Its distribution is complex as different institutions have their

> … own patterns of consumption and its own routines for reproducing and transforming texts … Producers within sophisticated organisations such as government departments produce texts in ways which anticipate their distribution, transformation and consumption and have multiple audiences built into them. They may anticipate not only 'addressees' (those directly addressed), but also 'hearers' (those not addressed directly, but assume to be part of audience) and 'over hearers' (those who do not constitute part of the 'official' audience but are known to be *de facto* consumers… (Fairclough, 1992: 79-80)

Signs of **intertextuality** characterize education policy constituting the introduction of environmental education. As stated earlier, the policy text relates to components of the National Policy on Natural Resources Conservation and Development of 1990 and recommendations of the 1991 National Planning Conference on Environmental Education (Cantrel & Nganunu, 1992). The Revised National Policy on Education forms the baseline in the creation of the new and review of curriculum sets (e.g. subjects syllabi), is guiding policy implementation at school and classroom levels and guides general readers. The policy text is intended to transform teaching approaches, as environmental education demands an array of teaching approaches including an opportunity for hands–on pedagogies (see chapters 8, 9, and 10). The policy may enhance better environmental performance in schools as environmental awareness and values may lead to conservation or sustainable use of resources. The introduction of environmental education may shape the vocabulary as pupils talk to each other, to teachers and may lead to an enhanced understanding of environmental concepts and what Fairclough (1992:

132) calls “semantic engineering” which involves articulating around the word and concepts.

The intertextuality of this policy “constitute relatively settled transformational relationships between text types” (*ibid*) as environmental education is infused across the curriculum. Before 1994, environmental education was not taught in schools and environmental information was contained and compartmentalized in some subject topics and units. Infusing it across the curriculum through a policy directive compels all teachers to teach environmental education. By instructing that environmental education be infused across the curriculum the intertextual nature of the policy text suggests the “lines of tension and changes the channels through which relationships between text and types are colonized and invested and along which relationships between text types are contested” (Fairclough, 1992: 133). The policy text encompasses a range of expectations from its recipients (policy readers and implementers). These include, amongst others, defining national goals and drawing up action plans for implementation, incorporating environmental education across the curriculum, as well as training teachers in methodologies and coordination of implementation programmes. These diverse policy text elements may cause interpretation problems for the discourse subjects. As Fairclough puts it “in order to make sense of texts, interpreters have to find ways of fitting the diverse elements of a text into a coherent, though not necessarily unitary, determinate or un-ambivalent whole” (Fairclough, 1992: 133).

7.5 Explanation: Social practice analysis

Botswana, like most of the countries in Africa south of the Sahara, is experiencing environmental problems as a result of industrialisation, population growth and pressure on land and natural resources base (see chapters 2 and 6). Common environmental problems facing the country include; pollution, pressure on water sources, depletion of wild products and animals, depletion of wood resources, rapid population growth and public awareness (see section 6.5.1). The problems continue to increase and become more complex. Choices to minimise this scenario are limited as poverty and other socio-economic issues come into play in the social practices. The education policy discourse is

an attempt to address the above environmental phenomenon. At the helm of the environmental education policy discourse is attitudinal change, which constitutes the current ideology. As Janks (1997: 341) puts it

> Ideology is at its most powerful when it is invisible, when discourses have been naturalised and become part of our everyday common sense. This is what results in writers using a discourse of paternalism unconsciously because it is available. By being there, it and the other available discourses constitute our identities and our constructions of the world. In a time of change, new discourses become available offering us new subject positions from which to speak and read the world. The conditions of text production and reception are gradually transformed.

The RNPE text illustrates historical transformation in policy discourse in the 1990s to form a new discursive hegemony in the new millennium. The recognition of the role of environmental education in changing human attitudes towards the environment and legitimization of environmental education policy in the education system can be said to be a 'discourse hegemony', not only in Botswana, but regionally and internationally (see chapter 2). For instance, in southern Africa, Zimbabwe, South Africa and Tanzania are some of the countries with environmental education policy (Makundi, 2003; Obol et al., 2003a; Shava, 2003).

The policy text is written in the English language, an official language inherited from the colonial era when Botswana was under the United Kingdom's protection. It is not written in *Setswana*, the national and second official language spoken and understood by the majority of the citizens. By using English language in policy text, the policy designer imposes a limiting factor on the readership. It controls and limits who should read it by excluding those who have limited proficiency in English language and frames concepts of environmental education according to the Anglo-Saxon tradition and central fabric. Olssen, Codd and O'Neill (2004: 66 citing Bourdieu, 1977: 648) arguing that "language is not only an instrument of communication or even of knowledge, but also an instrument of power. One seeks not only to be understood but to be believed, obeyed, respected, distinguished".

Resulting from the colonial legacy and globalization of economic power, the English language is the dominant language in education discourse in Botswana (and in former British colonies and protectorates in southern Africa). It is a medium of instruction from primary level two to tertiary level. It is the dominant language used in both government and private companies' offices. There is an international dimension to this discourse. English language use has characterized the modern Anglo world, and it has become the 'business language' reflecting economic hegemony in global society. The reason for having the policy text written in the English language is political, economic and historical. It has been used during the colonial and post-colonial era by imperialist powers to maintain and spread their sphere of influence. It was a baseline of the Anglicization policy, which forced colonial subjects to adopt English culture, dominating both education and religious discourses during the colonial period, and associated constructions of the subject. It is of advantage in both international relations and economic co-operation in the era of globalization, particularly in maintaining political and economic relations with the Anglophone countries.

English is one of the main languages used in the UN and its agencies, by regional organizations and is an official language of the Commonwealth countries and other countries in the world. The English language is a liberating or emancipatory language to elites such as scholars and job seekers particularly in the commonwealth countries. People from these countries manage to access information including current scientific knowledge, get training opportunities in countries other than their own, manage to access jobs and high positions around the world, and are able to communicate effectively with people of different nationalities. English is currently a language of convenience in the modern democratic Anglophone countries in Africa, and is used in education discourse and other social practices. Most of policy documents in Botswana, including education policy and a range of the syllabi, are written in English[2].

[2] The education policy documents are not translated in Setswana which would benefit the majority of the readers including parents. This is different to other countries like South Africa where efforts has been made to translate curriculum policy documents into eleven official languages, of which nine are African languages.

Another language use aspect in policy text analysis is to establish the existence or removal of asymmetries or inequalities in power relations in institutional discourse. Policy text demonstrates that an aspect of "elimination of overt markers of hierarchy and power asymmetry in types of institutional discourse where power relations are unequal" (Fairclough, 1992: 203) has been carried forward from previous policies. For instance, the RNPE text is constructed with a gender-neutral tone to ensure that no one would feel marginalized. It makes reference to teachers, an education officer or coordinator, both of which are gender-neutral. This reflects a change in gender discourse, which was previously male-dominated (see chapters 2 and 6). However, asymmetries in terms of recipients not being able to make suggestions are evident from the directive, regulative and imperative tone of the texts. For instance the policy uses modal verbs such as *'should'* and *'must'* (discussed in section 7.3.2). Although this may be implying commitment from the policy maker, it is asymmetrical as the recipients are expected to comply and collaborate. However, policy text provides curriculum designers with a chance to suggest topics that would enhance attitudinal change and citizen participation. The text indicates both asymmetrical and symmetrical continuities and discontinuities, which are not necessarily contradictory but normative.

7.7 Summary

This chapter focused on policy analysis using Fairclough's (1992) three-dimensional framework, which includes processes of text production, distribution and consumption. The text used for analysis was drawn from the 1994 Revised National Policy on Education. I analyzed only those statements specific to environmental education, which is the core focus of this research (see section 7.2). The analysis has demonstrated how language is politically important in struggles over education policy. This critical discourse analysis of the policy statements demonstrated that policy statements could be directive, imperative, authoritative and obligatory leaving the reader with limited chances for innovative actions. It is structured in a coercive tone leaving the agents with limited options thereby also creating a site for resistance. Policy text can objectify the subject, for instance a teacher or learner, as if they are simply manipulative objects. It also became clear from the statements that policy text may obscure sources of agency or sources of

power leaving it to the reader to work out who is accountable or responsible for a specified action to be carried in the implementation of the policy. From a Foucauldian perspective, policy may enable or constrain the reader. Policy text may be subjected to multiple interpretations depending on the socio-political, historical position and context of the reader.

This critical discourse analysis was not only confined to deconstruction of text (that is synchronic textual analysis); it also identified "systems of material and discursive articulation in which meaning and the processes of signification are affected by power" (Olssen, Codd & O'Neill, 2004: 53). Critical discourse analysis reveals that words and texts do not always carry the same meaning, and that they are historical and contextual. Their meaning is renegotiated or recontextualized each time they enter a new social or ideological space (Cormack & Green, 2000). Critical discourse analysis provides insights into hybridization and intertextual references that are not visible in the policy text. It also 'denaturalizes' text there "by showing how representations within texts mask the sources of their status and authority" (Olssen, Codd and O'Neill, 2004: 69).

Transitivity analysis revealed that policy text is laden with official assumptions that may mean different things to policy recipients. The Government is constructed with material and relational processes constituting asymmetrical power relations in policy discourse. Teachers and training institutions have been objectified with limited power as this text analysis illustrates an element of absolute instruction from the policy designer, which expects compliance from policy receivers. The learners are constructed with mental processes at the receiving end of the policy, instead of being partners in knowledge construction (see section 7.3.2 and chapter 8). The policy text also makes linear and behaviourist assumptions that are open to contestation in practice. For instance, it makes contestable assumptions about learners' change of attitudes towards natural resources without regard for existing and contextual relations. It assumes an attitudinal deficit and constructs the learner (and teacher educators, including the University) as lacking environmental ethics and attitudes for forming environmental engagements (see chapter 10). From this analysis, critical discourse analysis is a viable tool that aids genealogical

research as it allows for a more in-depth interrogation of education policy discourse and helps to establish how power operates within both discursive and non-discursive practices.

Critical discourse analysis does, however, lack reference to the viewpoints and actual experiences of those involved in the policy process, which is probed in this study through interviews and focus groups (see chapters 9 and 10). Before providing insight into the 'voices' and experiences of those involved in the policy process, I undertake a second critical discourse analysis to probe policy discourse and its genealogy further in chapter 8, through an analysis of three syllabi and the *Environmental Education Guidelines* documents.

CHAPTER 8
ENVIRONMENTAL EDUCATION IN THE NATIONAL CURRICULUM

8.1 Introduction

Having probed the 1994 Revised National Policy on Education statements on environmental education, I now undertake a second critical discourse analysis to probe policy discourse and its genealogy further. Chapter 8 analyses environmental education in the national curriculum. It provides a deeper analysis of selected curriculum documents to further explore understandings of education policy construction and interpretation. It looks at how policy statements were translated into curriculum statements. It provides a framework for understanding teachers' interpretation of policy and curricular texts from the *Environmental Education Guidelines* and selected subjects' syllabi in implementing environmental education in primary schools (see chapter 6). It gives an analysis of the *Environmental Education Guidelines* and selected subjects' syllabi based on Fairclough's (1992, 1995, 1989) and Janks's (1997) critical discourse analysis framework (figure 5.1, see section 5.5.2). In other words, it looks at selected pieces of text (e.g. aims and objectives), their processes and interpretation (e.g. mental or behavioural) and the social practices evident in the text. This chapter does not provide a deeper linguistic analysis but concentrates on how policy text was produced and interpreted drawing on Fairclough's framework and Foucault's genealogical approaches to research to explore knowledge/power relations in the education discourse.

8.2 Syllabus design procedure

The core purpose of a syllabus in Botswana is to guide teachers on what to teach at particular levels. A syllabus provides the learners with instructions on what to learn. It guides other readers (e.g. parents) on what should be learnt in relation to a particular programme and level. Curriculum choice is informed by the national education policy and associated curriculum prescriptions and guidelines. The education policy guides identification of the field of study (subject) and choice of level. Experts in the field are appointed on the basis of their knowledge and experiences to design a subject syllabus for

a specific level. In the case of the Botswana curriculum design procedures, a syllabus is designed by a task force comprised of professionals from the University of Botswana, Colleges of Education, representatives from the Examinations Board, the Departments of Primary and Secondary Education, primary school teachers, and a curriculum designer from the Department of Curriculum Development and Evaluation. In this case a curriculum designer will be an Environmental Education Curriculum Development Officer who also serves as the secretary to the Environmental Education Panel. In other subject syllabus task forces, subject officers serve as secretaries and the Environmental Education Curriculum Development Officer is a member of the task force. Heads of Departments and institutions determine the choice of individual panel members.

The syllabus task force draws up syllabus aims, topics, general and specific instructional objectives and suggested activities based on their knowledge of the subject and their experience. Draft syllabi are provided which suggest teaching methods and assessment criteria. The draft is supposed to reflect what is perceived as appropriate knowledge for a particular level. The task force also recommends teaching and learning support resources. The syllabus draft is sent to the National Education Council, then to the Permanent Secretary in the Ministry of Education for final approval. However, some new subjects are piloted first, after which an accompanying report is sent to the National Education Council for assessment and recommendation to the Permanent Secretary in the Ministry of Education.

Once the syllabus has been approved, it is handed over to implementing department officers through a series of workshops. Implementing departments then conduct teacher workshops with assistance of the Department of Curriculum Development and Evaluation (DCDE) officers responsible for specific subjects. Field Education Officers are supposed to continue giving support to teachers while the Department of Curriculum Development and Evaluation is responsible for monitoring and evaluation of curriculum, and develops, recommends, and prescribes teaching and learning resources. This chapter focuses on environmental education that is not treated as a subject but is infused across the curriculum. It focuses on the selected Primary School curriculum subjects, namely,

Environmental Science, Science and Social Studies. As mentioned earlier, the Environmental Education Panel developed *Environmental Education Guidelines* for the National Curriculum to assist curriculum developers (see sections 6.6.2, 7.2 and 8.1).

The syllabi and *Environmental Education Guidelines* are official documents whose declarative, authoritarian and instructive language portrays an imperative voice and the political power of the government through the Ministry of Education. These documents give environmental education symbolic capital in discursive practices. Their distribution is through an hierarchical power structure from the Ministry of Education, education officers to the classroom teachers (and learners) (see chapter 10).

8.3 Environmental Education Guidelines

As mentioned in section 8.2, an Environmental Education Panel appointed on the basis of their knowledge and experiences, developed the *Environmental Education Guidelines*. The panel comprised representatives from primary, secondary and tertiary institutions, parastatals, Ministry of Agriculture, National Museum, National Conservation Strategy, private sector and non-governmental organisations as per policy prescription (see section 6.6.2 and 7.2). The *Environmental Education Guidelines* is an official document outlining the National Goals of Environmental Education as per policy prescription. Its purpose is to guide curriculum developers and teachers on what, where and how to infuse environmental education. In the *Environmental Education Guidelines* foreword, the then Permanent Secretary in the Ministry of Education declared that environmental education has

> … become an important component of our school curriculum, has a significant role to play towards the realization of sustainable development. It aims to provide a holistic approach to education. Environmental education should be viewed as a continuous, life-long process that leads to the acquisition of environmental knowledge and the development of attitudes, values, and patterns of behavior which reflect a concern for the health of the environment as well as the quality of life for all earth's inhabitants. (Curriculum Development and Evaluation, 2002a: iv)

This foreword justified incorporation of environmental education into the education system. Interestingly the statement also highlighted the significant role of environmental

education towards the realization of sustainable development, which is currently debated and mainstreamed as a viable concept for development in the new millennium. The concept is highly esteemed by the United Nations which has declared a Decade of Education for Sustainable Development (2005 - 2014) (see chapter 2). The statement highlights the importance of environmental education processes as part of a continuous lifelong process The aim of which is "to lead to the acquisition of environmental knowledge and the development of attitudes, values, and patterns of behaviour which reflect a concern for the health of the environment as well as the quality of life for all earth's inhabitants" (*ibid*). This also contributes to espousing ideal principles of education for sustainable development (see chapter 2). However, the statement falls short of challenging or questioning the socio-economic fabric of society. As Stevenson (1987: 70) has observed, environmental education programmes should be expanded across boundaries to include "social, economic and political aspects as well as natural, historic and aesthetic elements".

Description of the Environmental Education Guidelines

The *Environmental Education Guidelines* document is organised into five focus areas that is general theme, objectives, main subject carrier, curriculum links and level. It consists of 15 general themes that are suggested for teaching across the curriculum. These themes are: water conservation, soil erosion and conservation, conservation (general), sanitation and waste management, environmental management, pollution, desertification, wood resources, natural resources management, environmental awareness and practices, population and environment, development and environment, environmental careers, key skills, environmental values, attitudes and ethics, and culture and environment. The primary school curriculum is expected to incorporate these themes under different subjects. The guidelines indicate which subjects are main carriers of a particular theme or whether there is a curriculum link. Main subject carrier subjects for themes are subjects that "have direct content related to or similar to that required for environmental education. These have a major responsibility to infuse the given environmental education content/concepts. These subjects must necessarily infuse the referenced developmental issues" (Curriculum Development and Evaluation, 2002a: 23). Curriculum links are

"subjects to which though no exact content relation exists, some linkage and extensions can be made between this subject and the given environmental education theme. The teacher may have to explore what links there are between the topic taught and any one of the environmental education themes for infusion." (Curriculum Development and Evaluation, 2002a: 23)

National Goals of Environmental Education

The guidelines contain the National Goals of Environmental Education as per recommendation no. 44 of the RNPE (see section 6.6.2). The National Goals apply to all levels of the education system and aim:

- To provide every learner with the opportunity to develop environmental awareness, acquire knowledge and understanding of the environment and the need for sustainable utilisation of Botswana's natural resources;
- To develop desirable attitudes and behavioral patterns in interacting with the environment in a manner that is protective, preserving, and nurturing; and
- To develop critical thinking, problem solving ability, individual initiative, interpersonal and inquiry skills to make informed decisions when dealing with environmental issues and willingness to participate in environmental protection and conservation.

  (Curriculum Development and Evaluation, 2002a: 1)

These goals are related to the general goals of environmental education as reflected in the *National Environmental Education Strategy and Action Plan* (1996) and other global resolutions and recommendations on environmental education (see chapters 2 and 6). This intertextuality evidently emphasizes that environmental education programmes should be constituted as awareness, understanding, knowledge, skills, attitudes and behavioural patterns and action to protect the environment. The first goal foregrounds the function of an environmental education programme: 'to provide the learner with an opportunity to develop environmental awareness, to acquire knowledge and understanding of the environment and the need for sustainable utilisation of Botswana's natural resources'. It emphasizes the provision and acquisition of knowledge and the development of environmental awareness and understanding as mechanism for sustainable utilization of the natural resources. The goal signifies the learner as an object and subjectifies the programme as an agent of change. The teacher is excluded as if the

programme is the doer. This statement manifests text as powerful in effecting change on the learner. The text also portrays the learner as capable of acquiring, and developing awareness and becoming knowledgeable. The role of the programme is inscribed *to provide, develop, acquire and sustain utilization*. These material processes include the learner's *opportunity, awareness, understanding and knowledge*. These actions exclude the teacher but constitute the environmental education programme as being capable of facilitating the learner's *opportunity, awareness, understanding and knowledge* to sustain the utilization of the natural resources. It does not, however, give an indication of what is meant by sustainable utilization nor of the complexities associated with structural constraints. It also individualizes the response to resource depletion.

The second goal focuses on developing *'desirable attitudes and behavioural patterns in interacting with the environment in a manner that is protective, preserving, and nurturing'*. This goal constitutes the environmental education programme as being capable of cultivating an environmental ethic among learners by developing desirable attitudes and behavioural patterns in interacting with the environment. It explicitly excludes the teacher and inferentially implies the learner as an object in pedagogic discourse. The role of the environmental education programme in this goal is **to develop** 'desirable attitudes and behavioural patterns'. The aim of such material processes is to encourage protective, preserving, and nurturing interacting manners with the environment. The goal is located in the affective domain and is biased towards promotion of self-control in human-environment interactions. The goal inscribes moral values: 'protective, preserving, and nurturing'. This form of liberal humanism is expected to filter across the curriculum constituting the learner as a self-governing subject (see chapter 11). However, the text is based on a linear casual logic that assumes that environmental education would lead to individual attitudinal and social change and the development of desirable behaviour. The text does not take into account unexpected factors that may emanate from economic status or personal or social (communal/cultural) attitudes and experiences that may constrain the achievement of the programme objectives.

The third National Goal of Environmental Education relates to the development of '*critical thinking, problem solving ability, individual initiative, interpersonal and inquiry skills to make informed decisions when dealing with environmental issues and willingness to participate in environmental protection and conservation'*. This goal implicitly infers the effects of environmental education programmes on the learner. It challenges schools and the education system to produce critical thinkers, problem solvers and individuals with attributes such as interpersonal skills and the capability to make informed decisions when dealing with environmental issues. Like goals 1 and 2, it excludes the teacher, leaving the reader to speculate about the overall mediator in the learning process. The action processes relate to critical thinking, problem solving, interpersonal and inquiry skills in dealing with matters concerning sustainable utilization of natural resources. The goal is skill-based, inscribing the expected cognitive and social abilities. From an historical point of view the third National Goal of Environmental Education captures part of one of principles of the Tbilisi Declaration (1977), which calls for the active involvement of students at all levels in working towards the resolution of environmental problems (see chapter 2).

To be consistent with the above National Goal of Environmental Education, learners should be exposed to a variety of ideologies through a process of inquiry, critique and reflection to develop and defend their own social inquiry and moral deliberations (Stevenson, 1987). Engaging learners in a rational process of social inquiry and moral deliberation would enable them to pursue actions they deem appropriate and justifiable for achieving environmental sustainability. These would support learners to formulate a moral code concerning environmental issues and to develop a willingness to act on their personal values by participating actively in environmental protection and conservation.

> The overall aim of environmental education in Botswana is to develop a society that is aware of, and concerned about the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively towards solving current problems and preventing new ones. (Curriculum Development and Evaluation 2002a: 2)

The guidelines acknowledged the internationally agreed objectives of environmental education[3] developed at the Tbilisi conference (1977) in developing students' environmental consciousness and concerns. This shows reliance on historical environmental education discourses, which were mainly based on conservation and preservation principles in the 1970s (see chapter 2). The text hybridizes the 1970s and the 1990s discourses. In other words, it shows the presence of the conservation and preservation discourse, together with sustainable development discourse creating whirlpools in environmental policy discourses (see Martinez-Alier, 2002).

Curriculum developers are required to translate these goals into instructional objectives guided by the *Environmental Education Guidelines* themes and objectives. The goals demonstrate a shift in epistemological and pedagogic discourse in the national curriculum and the education system. The shifts involve acceptance of environmental education as part of the national curriculum and the teaching and learning practices that would enhance the reproduction of environmental knowledge. They also signify a mind shift in accommodating curriculum innovations such as the introduction of environmental education.

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2 The following objectives from Tbilisi conference guided Botswana's environmental education programme.

- ✓ develop an **awareness** of, and concern for, the total environment and its associated problems and to acquire a global environmental perspective through local and regional environments
- ✓ gain **knowledge and understanding** of the environment and people's interrelationship and interdependence with it
- ✓ develop **skills** in investigating, clarifying, analyzing and evaluating environmental issues, and problems
- ✓ examine personal and societal **values and attitudes** relating to the environment
- ✓ identify **alternative approaches** and **opportunities** to the use and management of the environment
- ✓ make informed **decisions** about local, regional and global environments based on information about ecological, scientific, historical, political, economic, social, cultural and aesthetic factors
- ✓ use a variety of educational approaches that encourage an **appreciation** and an **empathy** with the environment
- ✓ be able to work towards resolving environmental problems as well as actively **participating** in the care and conservation of the environment. (UNESCO, 1977)

Environmental education objectives

To achieve the overall national goals of environmental education, the guidelines provided five objectives for the environmental education programme in primary education. A summary of the objectives of the environmental education programme for primary education analysis is provided in table 8.1. These objectives are analyzed following Janks (1997) and Fairclough's (1992, 1995 and 1989) framework to identify processes, activities and actors in the policy discourse (see section 5.5.3 and 7.2).

Table 8.1 Processes included in the objectives of EE primary programme

Objective	Processes	Activities	Actor
To make pupils aware of the physical, natural and cultural resources around their homes, schools and communities	Material Mental	Make Aware	Environmental education programme/ teacher/learner
To develop a sense of appreciation of the importance of these resources to the students and their communities	Material Mental	Develop Appreciate	Environmental education programme Learners
To impart to learners, basic skills necessary for healthy living and the conservation of natural and made/built resources around their home, school and community	Verbal	Impart	Teacher
To impart basic knowledge and skills that will promote the desire to conserve and preserve environment and its finite resources from the dangers of over-exploitation, waste and pollution	Verbal Material Mental Material Material	Impart Promote Desire Conserve Preserve	Teacher Skill/ environmental education programme Learner Learner Learner
To acquire skills of inquiry, critical thinking, and problem solving.	Mental Mental Mental Mental (material)	Acquire Inquiry Critical thinking Problem solving	Learner

The first objective focuses on making 'pupils aware of the physical, natural and cultural resources around their homes, schools and communities'. The objective is declarative, descriptive and directive in tone. It explicitly constitutes the learner more than in the goals. It identifies environmental discourse as part of the physical, natural and cultural resources situated in and around learners' homes, schools and communities. However, the teacher's role is not explicitly constituted but left for the reader to assume that the agent of teaching and learning is the teacher within the educational structure. The role of the teacher or the agent is inscribed as 'to make' pupils aware. This is a material process

constituting the agent (teacher) with the capability to effect change within the learner. It is also directive making it imperative for the teacher to carry out her/his duties creatively within limits to achieve the prescribed outcome. It signifies the power of the curriculum text. In a Foucauldian sense it both constrains and enables. The material process goals include pupils' awareness. That implies that the programme is capable of developing an awareness process among learners.

The second objective focuses on 'developing a sense of appreciation'. The objective explicitly emphasizes utilisation values of resources to people. It constitutes a primarily anthropocentric discourse (Hattingh, 1999: 2005). The role of the environmental education programme and teacher is signified as 'to develop'. This action process is related to a sense of appreciation of the importance of the resources by the students and their community. The text also emphasizes aesthetic values of the resources. The text demonstrates the power of the verbal/or written speech attempting to regulate and direct pedagogical discourse affecting its power on the subjects. It also constitutes a 'student and their communities' as capable of developing a 'sense of appreciation of the cultural and natural resources'. The use of verbal processes in the objective is close to mental processes relating to the affective domain indicating 'a sense of appreciation'. This mental process is a great challenge to curriculum developers and teachers, as they have to translate it into activities that will help to achieve the objective. Since the objective is contained in an official document it becomes imperative for curriculum developers, learning material developers and teachers to take note of it and ensure that it is achieved. The text also localizes the teaching of environmental education by making reference to cultural resources and the 'students and their communities'. This assumes the possibility of environmental education being able to make use of cultural resources. It assumes learners and teachers will be able to use local resources bringing school and the community together in a learning environment.

The third objective is 'to impart to learners basic skills'. The role of the teacher could be assumed as material process in imparting the necessary skills for healthy living and the conservation of natural and made/built resources around their home, school and

community. The role of the teacher is implicit in the objective and it is apparent that the teacher is the main agent in education pedagogic discourse. The teacher is constituted as a dispenser of factual knowledge limiting the learner to a receiver of predefined information. The objective signifies basic skills as necessary in the conservation of natural and human/built resources around homes, schools and community. The learners are constituted as objects to be manipulated pedagogically by the teacher to become aware through a mental process, and who will consequently change their behaviour.

The fourth objective focuses on imparting basic knowledge and skills. The verbal process is imperatively directing teachers to 'impart' basic knowledge and skills to learners that will promote the desire to conserve and preserve the environment. The word 'impart' does not imply a cooperative process of facilitating the generation of knowledge, but rather signifies the predominant pedagogical process involving the teacher as a knowledge source and as dispenser of environmental knowledge and skills. This mental process includes the desire to conserve and preserve the environment while the material processes involve promoting, preserving and conservation of the environment and its finite resources from the dangers of over-exploitation, waste and pollution. The objective constitutes the teacher as an actor capable of effecting the promotion of the desire among learners to conserve and preserve the environment by imparting basic knowledge and skills. The learners are constituted as subjects to be impacted on through receiving basic knowledge and skills to conserve and preserve the environment and its finite resources from the dangers of overexploitation, waste and pollution. Over-exploitation, waste and pollution have been inscribed as dangerous to the environment and its finite resources. The text constructs both conservation and alarmist problem-centred discourses constituting discontinuity to sustainability discourses.

The last objective relates to acquiring skills of inquiry, critical thinking and problem-solving. Its transitivity function is associated with mental processes of the learner. The role of the teacher is implicit and insignificant in the text. The text leaves the reader to speculate whether in an educational set-up, particularly at primary level, the teacher would be facilitating the acquisition of the inquiry, critical thinking and problem-solving

skills. The objective leaves the reader to assume that mental processes would be applied in relation to cultural resources, environment and to finite natural resources protection, preservation and conservation. Although there are indications of sustainability narratives in the overall goals there are slippages contrary to this in the texts of the objectives and what they constitute.

Teaching and learning strategies

The guidelines also suggest teaching and learning strategies as follows:

> - Practical and hands-on oriented teaching and learning methods to encourage the development of sound attitudes and sensitivity to the environmental forces around learners,
> - Project work that would involve development of skills in planning, investigating, collecting, analyzing and presenting data,
> - Practical research and experiment oriented teaching and learning strategies, story line method as done at primary schools, which is based on a learner centred approach to instruction. (Curriculum Development and Evaluation, 2002a: 5)

The suggested teaching and learning strategies emphasize practical activities endorsing "education about and in the environment" (Chatzifotiou, 2005: 509) to encourage the development of sound attitudes and sensitivity to the environment. However, 'sound attitudes and sensitivity to the environment' refer to education for the environment. The statement makes assumptions about the possibility of 'hands-on' activities in schools without the certainty of non-discursive practices and space that may or may not enable teachers to expose learners to 'hands-on' activities. It does not consider structural factors in schools. It makes a casual assumption that development of sound attitudes and sensitivity to the environment would logically follow after learners' exposure to 'hand-on' activities. The text's assumption leaves the reader to work out whether there will be no unexpected and unpredictable conditions that may constrain the activities. It appears to be based on a linear assumption about learners' environmental behaviour, and simplistic assumptions of agency (Archer, 1996).

The second strategy introduced is the project method that may entail practical activities to facilitate the acquisition of skills. The text deletes personification leaving the reader to work out who the subject and object are meant to develop the specified skills. However, it is restrictive in the sense that it specifies the skills to be developed giving the reader no option to be creative in developing a range of skills through project work. Thirdly, the text stipulates a range of strategies such as practical research, experiment-oriented teaching and learning and a story line method deploying the learner-centred method without an explanation of what this method is. The text opens up a more constructivist approach enabling both the teacher and the learner to be co-producers of knowledge. The text implies that teachers have competencies to facilitate learning through the stipulated strategies. It also assumes that primary schools' cultures and facilities would enable practice of the specified strategies.

The guidelines suggest an institutional surveillance mechanism that would impact on pedagogical discourses affecting both teachers and learners. It proposes that environmental education be assessed as an integral part of all subjects through continuous assessment and examinations that reflect on content of environment, problem solving and decision-making skills (Curriculum Development and Evaluation, 2002). Assessment is a technique that validates competitive individuals who manifest certain competencies. Assessment and examinations are disciplinary power techniques deployed in institutions to monitor pedagogic progress (see chapter 4). They are power techniques that act invisibly on an individual and the schooling system as they are concerned about performance and knowledge reproduction (see section 11.2).

The objectives of environmental education programmes for primary education provide guidelines as to what is to be taught and achieved, and mark out the actors and the processes (mental, material, behavioural and verbal) involved in teaching and learning and teaching processes. The objectives represent an authoritative voice from the Ministry of Education drawing on the policy to guide the introduction of environmental education across the primary school curriculum. The objectives invariably constitute the teacher as having power to impact on the learner in the classroom pedagogic discourse. Similarly

the learner is usually constituted as having the ability to benefit from environmental education programmes to protect, preserve and conserve the environment and its finite natural resources and sustainably utilize these. The environment has been constituted as a vulnerable object facing danger of been over-exploited, wasted and polluted. The objectives suggest inclusion of the community in environmental education discourse. The school, homes and community are constituted in relational processes. The learners and their communities are packaged together instead of separated to achieve the national goals of environmental education.

The *Environmental Education Guidelines* were instrumental in infusing environmental education into different subjects. Sections 8.4 to 8.6 provide an analysis of Environmental Science, Science and Social Studies syllabi, demonstrating how policy was translated into curriculum statements.

8.4 Environmental Science syllabus for lower primary education

Environmental Science is a combination of home economics, science and agriculture and includes "some elements of ethics and moral education" (Wright, 1995: 37). The intention of creating this subject was to integrate environmental education without extending the primary lower curriculum. The task force that developed this syllabus was composed of representatives from the combined subjects, the University of Botswana and Curriculum Development Officers. In designing this syllabus the task force was guided by their knowledge of the subjects, experiences and the *Environmental Education Guidelines*. The basis of the syllabus review were the old syllabi developed after the 1977 National Education Policy (see section 6.6.2).

The subject rationale

The rationale for the syllabus is based on hands-on experiences characterized by an inquiry method of learning whereby learners study through process skills. The aim is to give learners an opportunity to develop basic manipulative and problem-solving skills useful in real life situations. Environmental Science provides learners with an understanding and acquisition of basic knowledge of health practices, safety in the

environment and the world of work (Curriculum Development and Evaluation, 2002b). The subject rationale displays the conclusive nature of officially and expertly produced text meant to discursively direct epistemology and pedagogic discourse at classroom level. It is from this rationale that the aims of the subject, topics and objectives are derived.

The syllabus further declares that

> Environmental Science plays a central role in the development of the learners by helping them gain an understanding of the scientific and technological aspects of the environment they live in. Awareness and knowledge gained and skills learnt are expected to develop the learners' sense of responsibility towards the environment. (Curriculum Development and Evaluation, 2002b: i)

An analysis of the above statements is summarised and provided in table 8.2 below.

Table 8.2 Learner processes reflected in the ES Syllabus rationale

Processes	Learner process	Goal of action
Material	Development	of a sense of responsibility
Mental	Gain	an understanding of the scientific and technological aspects
Material (behavioural)	Live	the environment
Mental	Aware	knowledge and skills
Mental	Gain	knowledge and skills
Mental (behavioural)	Learnt	skills
Material	Develop	sense of responsibility

The material processes inscribed constitute the learner as the focus of the pedagogic deliberations. It prescribes direction to be followed in pedagogic discourse to effect the development of learners to gain an understanding of scientific and technological aspects of the environment they live in. The text signifies Environmental Sciences as being capable of developing the learners. The goal of the rationale is to help learners gain awareness, knowledge and skills to develop their sense of responsibility. The text objectifies the learners whose sense of responsibility towards the environment is to be developed. The rationale inscribes moral values (a sense of responsibility) and this links to the Wright (1995a) report's recommendation that Environmental Science incorporates some elements of moral education. For the subject rationale, a set of subject aims are included in the syllabus.

Subject aims

The subject aims declare that at the end of the programme the learners should have

1. Developed desirable attributes such as curiosity, creativity, assertiveness, self-esteem, open mindedness and respect for the environment and for one's own life
2. Developed environmental awareness and conservation of its resources
3. Developed awareness of the inter-relationship between Science, Technology and Society in everyday life
4. Acquired knowledge, skills and appropriate attitudes towards food production
5. Acquired critical thinking, problem solving and inquiry skills
6. Developed awareness and appreciation of the use of computers in everyday life
7. Developed awareness and appreciation of basic entrepreneurial skills
8. Developed awareness of their rights and responsibilities related to health and safety. (Curriculum Development and Evaluation, 2002b: i)

These aims emphasize awareness, knowledge, skills and appreciation of the environment and conservation of its natural resources. They reflects the Tbilisi conference objectives, refer to scientific knowledge and espouse conservation discourse. They are, however, mixed with critical thinking, personal rights, responsibility, health and safety. The aims introduce multiple discourses including computer usage in everyday life. This implies the learners are likely to be overwhelmed by diverse sets of information and processes embedded in the syllabus. They construct the learners as being capable of handling the prescribed knowledge and skills. The above aims are all aimed at the learner. A summary of their processes is provided below (table 8.3).

Table 8.3 Processes reflected in the aims of the Environmental Science syllabus (levels 1 - 4)

Aims	Processes	Activities	Actor
1	Material Mental Mental Mental Mental/behaviour Mental Mental Behavioural	Developed Appreciation Curiosity Creativity Assertiveness Self-esteem Open mindedness Respect	Learners
2	Material Mental Material	Develop Awareness Conservation	Learners
3	Material Mental	Developed Awareness	Learners
4	Mental	Acquired	Learners

5	Mental Mental Mental Mental	Acquired Critical thinking Problem solving Inquiry	Learners
6	Material Mental Mental Material	Developed Awareness Appreciation Use	Learners
7	Material Mental Mental	Developed Awareness Appreciation	Learners
8	Material Mental Mental	Developed Awareness Responsibilities	Learners

The aims are conceptualized to impact primarily on the mental processes of the learners doing Environmental Science at lower primary (levels 1 – 4). The mental processes are marked as dominating the aims of the subject and include appreciation, curiosity, creativity, assertiveness, self-esteem, open-mindedness, respect, awareness, acquisition, critical thinking, problem-solving and responsibilities. The goal of these mental processes is to effect change in the learners by promoting the learners' epistemology through pedagogical strategies. The aims promote self-governance in respect to the learners' relation to the environment. The words such as 'assertiveness', 'self-esteem', 'respect', 'responsibilities' and 'critical thinking' were carefully chosen to reinforce a form of governmentality in learners. The wording of the aims constitutes Environmental Science as capable of assisting individual learners to regulate themselves through self-assessment, i.e. they are expected to govern themselves in ways that show respect and responsibility towards the environment. This form of governmentality implies that through Environmental Science learners would be aware, knowledgeable, understand and problematize their relation with the environment. This introduces the notions of morality and ethics that imply monitoring and regulating various aspects of self-conduct (Dean, 1999). The carefully selected words in these aims are also a 'means of resistance to other forms of government (Dean, 1999: 13) that manifest in negative behaviours towards the environment (e.g. showing disrespect or being irresponsible).

The syllabus aims at enabling learners to acquire critical thinking and problem-solving skills. This is seen to be critical in ensuring meaningful learning experiences in environmental education (UNESCO, 1978) (see chapter 2). The approach would call for informed guidance by the teachers to enable the learners to engage in meaningful investigation/inquiry of environmental problems/issues to effect change through their solutions to the problems. The critical thinking strategy requires a meaningful engagement with environmental issues based on sound information about the issues. This creates a challenge and an expectation of teachers to ensure that they gain more information about environmental issues to be able to guide learners in their critical engagement with issues and risks. According to (Dreyer & Loubser, 2005: 141)

> Critical thinking comprises content knowledge, procedural knowledge, the ability to use and control thinking skills, and a positive attitude to using the knowledge and thinking skills acquired. It develops logical reasoning, creative thinking and problem-solving skills.

The material processes in the aims include develop, conservation, use and developed. These processes imply that the learner will be drawing from environmental knowledge and understand to act upon their interaction with the environment where they are expected to effect change (develop), conserve and use resources wisely. This provides insight into how curriculum plays out through power effects on an individual. That is where an individual must exercise disciplinary power on her/himself to act or behave differently based on existing or acquired knowledge. The behavioural processes include assertiveness and respect. They implies that learners are expected to employ different mentalities of self-government (disciplinary power) to reduce their impact on the environment and show respect to the environment and their own life. These processes are to be achieved through teacher facilitation. The aims are presented in exclusionary style, excluding the teacher who is the pillar of pedagogical discourse in the classroom at primary school.

Teaching methodologies

The syllabus discourse reflects an assumption that core role of a teacher in a primary school is to help learners learn by giving information about or instructions to do something. There are different methods or ways of teaching. Environmental Science syllabus developers provide an indication of which methods teachers are expected to use in teaching the subject. It is declared that

> The syllabus encourages a learner-centred approach as emphasized in the Curriculum Blueprint. This approach involves laying emphasis on Science process skills and the exposure to hands-on activities, which should increase the participation and performance of all learners including those with special needs. (Curriculum Development and Evaluation, 2002b: 1)

Learner-centred education expects learners to become creative, independent thinkers, and problem-solvers in pedagogical practices. The syllabus guides teachers on the pedagogy: it is not prescriptive as it declares that "the syllabus encourages a learner-centred approach" without specifying learners' activities. It gives the teacher the latitude to operate innovatively with the learner-centred approach. It marks a shift away from the teacher constructed as "authoritarian dispenser of knowledge, to a facilitator of learning" (Janse van Renseburg, 2000: 18). The syllabus justifies the learner-centred approach saying that it involves placing emphasis on science processes skills, and exposure to hands-on activities which should increase the participation and performance of all learners. The text does not describe or prescribe 'hand-on activities'. The teacher's role is constituted as that of a mediator of learning, with the liberty to use various teaching methods within a broader frame of learner-centred education and participatory, active approaches. It declares that

> The teacher in this case assumes the role of a facilitator in learning. Teaching and learning activities in class are planned to draw from the experiences of the learner, and provide a conducive classroom atmosphere that allows pupils to be active participants in their own learning.
>
> Teachers may use various teaching methods including problem-solving, project method, thematic approach, experimentation, investigation, demonstrations, field

> excursions and discussions. The local environment should be used to provide context to the syllabus. (Curriculum Development and Evaluation, 2002b: i)

The text recognizes the role of teachers in the teaching and learning of Environmental Science. It provides suggestions for teaching and learning approaches without overtly constraining and confining teachers' chosen learner-centred approach and specific teaching and learning strategies. There is also a balance of teachers' role and learners' presence in the discursive practice but the discourse privileges teaching methodologies and places these at the centre of the discourse. It assumes that teachers have the pedagogical knowledge and experience to work with learner-centred approaches and that schools are resourced for a variety of interactive, enquiry-based participatory methods. The last statement is declarative and imperative: "The local environment should be used to provide context to the syllabus". The word 'should' emphasizes the use of the local environment legitimizing it as a significant pedagogic space for environmental education.

The syllabus places more emphasis on scientific skills, which are marked as central to Environmental Science teaching at primary lower level. The skills are listed as observing and recording, classifying and comparing, predicting, measuring and comparing and investigating. These skills are integrated into different topics' objectives throughout the syllabus. Interestingly the teacher is only explicitly given recognition under the *teaching methodologies* section of the syllabus. The rest of the syllabus focuses on the learner and the teacher's role is subsumed.

The document/syllabus text states "Environmental Science must be presented in an interesting and challenging way that should popularize it". The legitimacy of the subject is emphasized by the use of obligatory language. The use of the modal verbs such as 'must' and 'should' implies that there are no options but to present the subjects as prescribed. The text assumes that teachers are capable of presenting the text in the prescribed manner. It does not take into account their competencies and attitudes, nor does it intimate how the prescription would be carried out and measured. The focus on the need to 'popularize' the subject is interesting, and indicates that it is 'new' and unfamiliar, or that it has previously been unpopular. Modal verbs associated with this

phrase indicate the curriculum developers' desire for the subject to gain ascendancy in Botswana.

Description of the syllabus format

The syllabus is organized into four modules, namely *our surroundings, the non living environment, the living environment and health and safety*. Learners are required to do all modules each year. The module titles are retained for each level but the contents progressively change. Each module is categorized into three columns comprising of topics, general objectives and specific objectives. The instructional objectives in the syllabus outline are addressed to the students as they all fall under a modal statement "students should be able to". It is expected that teachers follow these instructions to facilitate learning and learner competence in their teaching of the subject.

The syllabus objectives

The subject contents are determined from the topics and refined by following general and specific instructional objectives. The objectives are not only instructive, but also display the official power of the syllabus, which is non-negotiable and imperative for the teacher and the learners to accomplish. The processes expected in the teaching and learning of the subjects are summarized for each level in table 8.4. For level 1 all learner processes have been provided and counted (the numbers appears in brackets). For level 2 to 4 only new learner processes or activities have been indicated. All the identified main (action verbs) activities identified at level 1 occur at each subsequent level as well.

Table 8.4 Learners Processes included in the Environmental Science syllabus (levels 1 – 4)

Level (1 – 4)	Processes	Learner process	Actor
1	Mental Material/mental Mental/material Mental Mental/material Verbal Verbal Verbal Material Mental Mental Material/behavioural	 Observe (11) Record (4) Classify (4) Compare (4) Sort (1) State (6) Describe (2) Discuss (5) Demonstrate (7) Identify (13) Recognise (7)	Learner

	Mental Material Material Material/behavioural Verbal Material Material Material Material Material Mental/material Verbal	Draw (1) Appreciate (1) Use (1) Collect (1) Display (1) Name (3) Group (1) Measure (2) Practise (3) List (1) Make (1) Select (1) Explain (1)	
2	Material Mental Mental Material Mental Mental Mental Material	Keep (2) Acquire (1) Distinguish (1) Preserve (1) Investigate (3) Interpret (1) Predict (1) Prepare (1)	Learner
3	Mental Material/behavioural Mental Mental Material Material Mental	Determine (1) Perform (1) Relate (1) Find (2) Construct (1) Plant (1) Plan (1)	Learner
4	Material Material/mental	Carry out (1) Manage (1)	Learner

Table 8.4 shows that the syllabus objectives place more emphasis on the material processes, than mental processes, followed by verbal with less emphasis on behavioural processes. This trend shows a limited shift from the former hegemonic paradigm that placed more emphasis on material processes (Botswana Government, 1977). The shift could be related to the significant inscription of environment content and localization and contextualisation imperatives across the syllabus. The wording emphasizes and privileges cognition and motor skills. It proposes environmental awareness and understanding in respect to the learner, indicating concern with the learner and or with the environment. The objectives include a variety of processes, namely material, verbal, mental and behavioural all directed at the learner. The syllabus objectives constitute the learner as the focus, inconsistently constituted as an object to be manipulated or a subject with limited or full capacity to participate in the learning process. What the learners are required to learn is constituted by both general and specific objectives.

Environmental Science syllabus objectives emphasize *material processes* that have to do with doing things. More emphasis is placed on this at primary level 1. The action verbs include record, sort, demonstrate, collect, group, model and plant. The text implies that these processes are applicable and possible at primary lower level. Moreover, it implies that the process would enhance the achievement of the subject aims in the implementation of the education policy. It implies that these processes are in line with the intentions of environmental education. The text leaves the reader to work out how these material processes could be enhanced through learner-centred approaches and the variety of teaching and learning methods available. It constitutes the learners as capable of carrying out the processes at primary lower level studies in Environmental Science.

The second process implied in the text is *mental process*. The processes are indicated by words such as *predict, appreciate, compare, investigate, interpret, acquire, distinguish and determine*. The processes are linked to sensing and are cognitively oriented. The text implies that learners would be able to use sense and cognition skills in the learning of Environmental Science. The objectives are written in an authoritative voice implying absolute compliance by the facilitator and learners. The objectives are stated in an uncertainty mode to emphasise the official power of the text constraining the teacher and learner to work towards accomplishing them. To facilitate and compliment material and mental processes among learners in Environmental Science some objectives promote the development of verbal skills through verbal processes.

Verbal processes are promoted through action words in the objectives such as *name, describe, explain, discuss and state* at lower primary level. The objectives and the choice of words used are assumed to be appropriate for children at lower primary. For instance some of the objectives state that students should be able to "*describe a clean environment* and "*name the sense organs"* in their first year at primary school. The text uses the imperative "*the students should be able to…."*

The last process to be enhanced through the subject is *behavioural process* that is linked to skills, attitudes and knowledge. The objective text uses words such as draw, display and performs. For instance, student should be able to *perform activities related to each season* or *draw pictures to show a sunny, cloudy, windy, and rainy day*. The text implies that learners at primary level would be able to perform and draw illustrating their acquisition of knowledge and skills to draw and perform some activities related to each season.

Environmental Science syllabus objectives either nominalise or pacify the teacher within text. That is the teacher is deleted leaving the reader to work out the role of the teacher from the text although indications are given in the section on teaching methodology. The objectives implicitly address the teacher's role which is not absolutely facilitatory, and is still restricted by a centrally designed syllabus in spite of the learner-centred commitment to methodology. Teachers still operate within a framework of limited freedom to design their own programmes based on the guidelines from the education policy and curriculum blue print. The teacher is mentioned under teaching strategies and subjectified as a purveyor of skills, as an authority, possessing content and process knowledge, and is ascribed a pastoral role to spread the knowledge and understanding and develop morals and ethics. In this respect the teacher is privileged by the objective text and constructed as someone with power and authority.

The Environmental Science syllabus content still prescribes the learning content as illustrated by a detailed syllabus content specifying activities and outcomes. It privileges a selection of topics to be sole contents of the subject at lower primary level. The privileged topics include living and non-living things; care of the surroundings; sky, seasons and weather; natural resources; plants; ourselves and other animals; personal hygiene; safety and food and nutrition. The objectives also focus on self-development such as 'demonstrate individual responsibility in using water'. Although the syllabus espouses learner-centred methodology (such as hands-on activities), the general and specific instructional objectives still emphasize a teacher-centred process. Environmental Science includes human dimensions in topics such as soil erosion and attention is drawn

to character, functioning and dynamics of human systems that impinge upon the natural world, the environment. The crux of Environmental Science is the interaction between human and natural systems as demonstrated by a range of topics covered in the syllabus for lower primary schools.

The objectives of Environmental Science are not particularly consistent with its rationale that espouses the 'scientific and technological' aspects of the environment. These are still based primarily on basic scientific knowledge. The objectives provide insight into how power circulates, constrains or enables. For instance, the objectives inconsistently privilege or silence the teachers' role in pedagogic discourses, and privilege scientific knowledge.

8.5 The upper primary Science syllabus

The **Upper Primary Science syllabus** is developed to meet the requirements of the Revised National Policy on Education (RNPE). Its development procedure is similar to that of Environmental Science. It is a symbol of political voice and the official power of the state to direct the learning programme. It is responding to the context of RNPE and historic demands in education to cope with modern scientific knowledge expansion facing the challenges of the millennium. "It aims at helping learners improve their science skills and develop systematic procedures for exploring the environment, and explaining events and phenomena". (Curriculum Development and Evaluation, 2005a: 1)

The rationale for the Science syllabus

The rationale for Science emphasizes science-society discourse. Science is constructed as an important tool with which socio-economic problems can be solved, by "helping to develop mental processes that enhance logical and critical thinking, which is essential for organizing knowledge, developing concepts and skills necessary for decision-making and solving life problems" Curriculum Development and Evaluation, 2005b: 1). It constitutes Science as an important subject capable of solving socio-economic problems and helping to develop mental processes such as logical and critical thinking. Scientific knowledge is

also constituted and inscribed as capable of enhancing "the learner's ability to make associations and generalizations about life, thus enabling the learner to adapt to various life situations" (*ibid*).

The overall aims and targets of the Upper Primary Science programme

The overall aims of the Upper Primary Science programme include those of Environmental Science offered at lower primary. The aims constitute the Science programme as instrumental in developing desirable attributes and attitudes, awareness, skills, critical thinking and learners' "special interests, talents and skills whether these be dexterity, physical strength, intellectual ability and/or artist gifts" (Curriculum Development and Evaluation, 2005b: 1). The programme aims to develop learners' desire, competence and confidence to solve day-to-day problems.

Its ***attainment targets*** related to the environment are summarised below:

- An ability to sort, group, and describe objects and events in their immediate environment, using their senses and noting similarities and differences,
- Attitudes such as curiosity, open-mindedness, respect for the environment, responsibility for one's own learning and life (initiative) and decision making,
- Knowledge and understanding of the ways in which human activities affect the earth or environment,
- An appreciation of the need to utilize the finite environment in a sustainable way and guard against overexploitation, waste and pollution, and
- An awareness of HIV and AIDS and matters of environmental health. (Curriculum Development and Evaluation, 2005b: 2)

The attainment targets highlight both mental and material processes. The processes are assumed to have developed by the end of Upper Primary School education. The opening statement to the targets inscribes what should happen in an imperative tone: "students should have…". It makes it compulsory for the teacher to strive to achieve the expected outcome, as the syllabus is an official document examined at the end of the programme. The processes involved are 'an ability'; 'attitudes' (curiosity, open-mindedness, respect, responsibility, etc); 'knowledge and understanding of'; 'an appreciation' and 'an awareness'. The syllabus identifies the science process skills as observation, recording, measuring, comparing, classifying, experimenting, predicting and interpreting data. To

achieve these process skills the syllabus encourages a learner-centred approach in which the teacher is regarded as a facilitator as well as a learner, while the child is a learner and partner in knowledge reproduction. The result, therefore, is an emergence of learning networks instead of one-way communication channels (Curriculum Development and Evaluation, 2005b). The teacher's role is defined as a facilitator and a learner in a two-way system of knowledge generation.

Description of the syllabus

The Upper Primary Science syllabus is organised into eight modules. The modules are: science and society, nature and universe; matter and energy; force and motion; electricity and magnetism; health and safety; body systems and sexual reproductive health. The syllabus contains general objectives that are broken into different components covering specific instructional objectives and suggested activities/outcomes. This analysis will focus on a selection of topics and objectives to provide a deeper understanding of the policy discourse as reflected in the Science syllabus. Module one introduces learners to the application of scientific inquiry to solve both human and environmental problems. For the purpose of analysis I will concentrate on module two which includes more environmental topics than the other modules in the Science syllabus.

General and specific objectives

The analysis is focused on processes as indicated in the general and specific instructional objectives, summarised below in table 8.5.

Table 8.5 Learner process in the Upper Primary Science syllabus

Level	Processes	Learner process/activity
5	Mental/material	Show (3)
	Verbal	Describe (2)
	Verbal	Explain (4)
	Material	Investigate (2)
	Material	Construct (2)
	Material	Use (1)
	Verbal	State (3)
	Material	Identify (2)
	Material/mental	Classify (1)
	Mental	Define (2)
	Material	List (1)
	Mental/material	Demonstrate (2)

	Verbal Mental/Verbal Material Mental Material Mental/material Mental	Discuss (3) Suggest (1) Measure (1) Interpret (2) Record (1) Develop (1) Acquire (1)
6	Mental Verbal Verbal Material/material Mental Mental/material Material Verbal Mental/material Material/mental Material Material Mental Mental	Recognise (3) Explain (3) Describe (6) Show (1) Predict (1) Identify (2) Participate (1) Discuss (2) Investigate (4) Classify (1) Distinguish (1) Demonstrate (2) Define (1) Compare (1)
7	Mental Verbal Verbal Mental/material Verbal/mental Material Material Material Material/mental Material Mental Mental Material/mental	Recognise (1) Explain (3) Describe (8) Identify (1) Discuss (3) Investigate (2) Give (2) Show (1) Distinguish (1) Demonstrate (2) Define (2) Understand (1) Explore (1)

The Science syllabus promotes material, mental, and verbal processes. The analysis reflected in table 8.5 shows that the Science syllabus emphasizes and privileges material processes, followed by mental and verbal processes. The material processes include investigating, demonstrating, participating, showing, measuring, identifying, listing, recording, and constructing. The development of these processes are constituted as core in the Science programme and are inscribed as appropriate for upper primary level. The text implies that learners should be able to develop the specified skills and do the suggested activities. For instance, one of the objectives reads learners should be able to '*measure weather conditions'* at level 5 of primary education. The objective is stated with an imperative tone expecting compliance from the learner and teacher.

Mental processes include defining, suggesting, understanding, recognizing, comparing, investigating, interpreting, predicting and acquiring. The text implies that the programme has the capacity and potential to promote mental processes among learners. For instance one of the objectives stated that *learners should be able to* ***interpret*** *changes in weather conditions* at level 5. Another objective states that the *learner should be able to* ***suggest*** *ways of controlling alcohol and drug abuse* at level 7. The objectives are stated in absolute terms for readers' compliance and with an imperative tone for teachers and learners to work without fail towards their achievement.

The verbal processes include stating, discussing, describing, and explaining. Some of the activities such as 'exploring', 'investigating', 'classifying' and 'developing' involve both mental and material processes. Examples of some of the verbal processes constituted by the text can be found in the following objectives: *learners should be able to* ***discuss*** *the distribution of water on the earth surface, underground and in the atmosphere* and ***explain*** *the terms: habitat, population and community*. Module two privileges topics such as 'the environment', 'water', 'weather', 'the solar system', 'plants', 'animals' and 'air'. The syllabus objective privileges academic, scientific knowledge and skills and includes some relationships to values pertinent to daily life.

8.6 Social Studies Syllabus

The 1977 National Education Policy first introduced Social Studies into the Botswana's education system. It was basically a combination of Geography, History, Economics, as well as political and social practices that informed teaching and learning at primary school level. The subject syllabus was revised following the 1994 RNPE. It was during revision of the current syllabus in response to the RNPE that environmental education gained recognition and space in the Social Studies syllabus.

The Social Studies syllabus is an official document developed and produced for upper primary education. The subject is interdisciplinary integrating elements of social sciences and humanities: "It deals with socio-economic, cultural and political issues as well as

human interaction with the physical environment." (Curriculum Development and Evaluation, 2005b: 1)

> The syllabus is organized into five broad thematic modules, which are presented in a sequential manner such that there is gradual build-up in depth and coverage. In most topics an attempt has been made to infuse as much as possible emerging issues such as Environmental Education, population and family life education and HIV and AIDS. (*ibid*)

The subject content creates space for environmental education as one of the 'emerging issues'. It legitimizes environmental education responding to RNPE and draws on the *Environmental Education Guidelines*.

Rationale

The justification for Social Studies also emphasizes the integration of environmental education. The primary reason for Social Studies has been constituted as instrumental in helping "learners acquire and use information to think critically, logically and rationally in dealing with social, economic, political and environmental issues" (Curriculum Development and Evaluation, 2005b: 1). The text signifies Social Studies instruction as the core of the subject in encouraging and promoting learner's "cultural identity, good citizenship, tolerance as well as social and environmental responsibility". The text also symbolizes Social Studies as being capable of assisting learners' in "the attainment of knowledge, develops skills and promote desirable attitudes needed to function as informed, productive and responsible citizens" (*ibid).* However, the choice of language used is indicative of its imperative mood. For instance, it uses words such "*it encourages and promotes*" and "*it facilitates*" as if it is certain, rather than tentative to allow the learning mediator or teacher space to be innovative. The text is clearly authoritative and certain about what Social Studies "does" to learners.

Overall Aims

The overall aims of the Social Studies syllabus relating to the environment are summarized below:

- Develop desirable attributes such as initiative, curiosity, creativity, assertiveness, self-esteem, open mindedness, respect for the environment and for one's own life.
- Acquire knowledge and understanding of their environment and the need for sustainable utilisation of natural resources.
- Develop desirable attitudes and behavioural patterns in interacting with the environment in a manner that is protective, preserving and nurturing.
- Gain the necessary knowledge and ability to interact with and learn about their community, government of their country and the world around them. (Curriculum Development and Evaluation, 2005b: 1)

The above overall aims of the Social Studies programme are similar to those of Environmental Science and Science programmes (see sections 8.4 and 8.5). The text privileges the development of desirable attributes, acquisition of skills and gaining of knowledge by learners. It is stated with certainty, inscribing some form of compliance expected from the policy agents. The processes inscribed are mainly mental (see table 8.6).

The syllabus has prescribed a set of twelve attainment targets to be achieved at the end of the Upper Primary education. Amongst them, learners should be able to:

- Demonstrate some decision-making skills,
- Demonstrate appreciation of conservation and sustainable use of natural and cultural resources,
- Be aware of Botswana's physical, political and economic environment,
- Express knowledge and understanding of Botswana's settlements and population characteristics,
- Show understanding of the physical and economic environment in the Southern African region, and
- Demonstrate knowledge of the physical environment and human activities in Africa. (Curriculum Development and Evaluation, 2005b: 2)

The overall aims construct both conservation and sustainability discourses running parallel. This is a mix of both the 1970s and current thought with regard to environmental discourses, which may cause some tensions in text interpretation and in the teaching of environmental education. The processes inscribed are mainly mental such as

demonstrating decision-making skills, appreciation and showing understanding (see table 8.6 that follows).

Table 8.6 Learner processes in the Social Studies syllabus (aims and attainment targets)

Categories	Processes	Learner Action
Aims	Mental	Develop desirable attributes and attitudes
	Mental	Acquire knowledge and understanding
	Mental	Gain the necessary knowledge and ability
Attainments targets	Material and mental	Demonstrate some decision-making skills, appreciation and knowledge
	Mental	Be aware
	Mental/verbal	Express knowledge and understanding
	Mental	Show understanding

Teaching methodologies

To achieve the Social Studies aims and attain the prescribed targets, the syllabus proposes a learner-centred approach to teaching, calling for active participation by learners during the lessons and a variety of activities to ensure that learners participate and become responsible for their own learning. A proposed variety of activities includes "drawing, group work, debates, presentations, role-plays, observation and inquiry. Pupils should be provided with skills that will enable them to gather information on their own e.g. using information technology" (Curriculum Development and Evaluation, 2005b: 2). The syllabus further proposes "outdoor activities and/or field excursions where possible to give learners first hand information on some of the issues covered. Where possible, external resource persons can also be invited to present on specific topics" (*ibid*). The outdoor activities and excursion are recommended with emphasis: "It is recommended that teachers should embark on…" *(ibid).* The word 'should' emphasis the official voice of the text and legitimizes the activities. It obliges the teachers to strive to fulfil the obligation within the pedagogical discourses. The subject is allocated "a time slot of two hours per week. Four weekly periods of about 30 minutes duration should be sufficient to cover the syllabus adequately". Although the stated time allocated to teaching of Social Studies is an enabling factor for the teachers to teach the subject, the assumption that the

time allocated is sufficient to cover the syllabus constrains the teachers' pedagogical discourse and forces them to plan their activities within the suggested time allocation. The use of the word '***should'*** adds more emphasis (and power) to the official voice of the syllabus text, potentially constraining agency to operate within the limits the syllabus text dictates. The statement constitutes the agents (teachers) as "capable of exerting some degree of control over the social relations in which one is enmeshed, which in turn implies the ability to transform those social relations to some degree" (Sewell Jr., 1992: 20). Teachers are expected to act creatively within a given time to cover the syllabus content and the stipulated activities. They are expected to "employ complex repertoires" (*ibid*) of their professional skills and powers to control and sustain pedagogical discourse to enhance environmental literacy among learners.

Syllabus contents objectives

Module two of the Social Studies syllabus was selected here for content analysis as it carries more environmental content. The topics covered in module two are location, physical environment, and natural resources management in Botswana/southern Africa, weather and climate, and the World. The common action verbs used in the objectives are describe, locate, draw, discuss, suggest, identify, analyze, demonstrate, explain, give, cite, list, state, name, use, classify, outline and calculate. The syllabus content privileges both the physical and human environment at upper primary level in module two. The objectives instruct learners to identify, describe and draw Botswana's major physical features. It also instructs learners to "describe human activities associated with the major physical zones in Botswana" (Curriculum Development and Evaluation, 2005b: 4). The content also introduces learners to political aspects of the environment as it requires them to be able to "know the position of Botswana in relation to other countries in Southern Africa" (*ibid*).

The syllabus objectives privilege mental, verbal, behavioural, and material processes at upper primary level. One of the objectives instructs the learners to "*suggest* possible solutions to the problems experienced by a landlocked country" (*ibid*). This implies that learners should use their thinking to "suggest possible solutions to the problems

experienced". The text constructs the learner as someone capable of using thinking skills to suggest possible solutions. Learners 'should' be able to "discuss the effects of rainfall on the environment" (*ibid*: 5). This objective demonstrates verbal process promoted through teaching and learning of Social Studies at upper primary level. The choice and use of "should" implies a high possibility of the development of verbal skills. The text also implies the promotion of both behavioural and material processes and skills. For instance, one of the objectives instructs the learner to "draw a simple weather chart that describes weather conditions for a given month" (*ibid*). The text implies that Social Studies instruction is capable of enhancing learner's behaviour to do drawing and ability to draw.

In summary, the Social Studies programme like Science and Environmental Science has potential for enhancing environmental education teaching and learning. Its rationale, aims and objectives reflect policy statements as interpreted from the *Environmental Education Guidelines*. It includes environmental education components without compromising its integrity as a learning area. Its programme objectives espouse the principles established through other subjects to integrate the environment within their contents. The document text reflects the common official language found in other curriculum policy documents such as Environmental Science for lower primary and Science for upper primary education levels. The texts promote mental, material, verbal and behavioural processes privileging mental and material. The text is like others constructed in an imperative and authoritative mood to ensure compliance and accomplishment of the Social Studies programme's goals while apparently supporting learner-centred pedagogy.

8.7 Summary

This chapter has provided an analysis of the policy documents related to the RNPE statements on environmental education. The documents were all designed to make sense of the recommendations of the RNPE in introducing environmental education. The documents are intended to provide more detail to broad policy statements and to enable readers such as teachers, learning and teaching material developers, and the general public to understand what is expected in education. They all reflect multiple

interpretations of policy statements at curriculum design level within the education structure. The analysis is framed within the post-structural perspective following Fairclough (1992) using critical discourse analysis dimensions (see figure 5.1 and section 7.2). Analysis focused on selected parts of the documents such as the rationale, aims/goals and objectives. The syllabus text was further probed using some language tools. As Prinsloo (2002: 442) observed "the concern with processes of production introduces the idea of text being purposeful on one hand and economically driven on the other".

The analysis in this chapter has revealed that policy document texts, like the broad policy texts, possess instructive power, which is clear from the language used, reflected in the authoritative status of the texts in linguistic choices with an imperative tone. The syllabus texts are all declarative, claiming indisputable truths about discipline knowledge and processes. They are official, authoritarian and informative inviting collaboration and compliance to ensure accomplishment of programme goals. The texts also demonstrated incidences of hybridity. For instance, the Environmental Science and Social Studies syllabi accommodated old syllabus content and orientation to constitute the revised subjects in response to the RNPE recommendations, representing a set of intertextual curriculum documents drawing on old syllabus contents, while introducing new concepts and processes such as sustainability and learner-centred education. The wording of the aims generally constitute teachers as capable of assisting individual learners to regulate themselves through the development of desired characteristics and behaviors. This form of governmentality implies that through these subjects learners would be aware, knowledgeable, understand and be able to problematize their relationship with the environment, and respond with applied ethics, which imply the ability to monitor and regulate various aspects of their behavior through disciplinary power (see chapter 11).

The analysis of the syllabi indicates a departure from the old syllabi, since environmental content has been infused, illustrating the changes from pre-1994 syllabus. The reviewed syllabi also indicate a stronger constructivist approach and highlight environmental components for contextrualized content. For instance, the Environmental Science broad

aims advise that the local environment be used to provide context, while Social Studies introduces learners to local environments, regional and global environmental discourses. Their rationales, aims and objectives reflect the policy statements as interpreted in *Environmental Education Guidelines*. The texts promote mental, material, verbal and behavioural processes, privileging the mental and material processes. The analysis also revealed that the subject content included self governing strategies through the promotion of mental and material processes that aim to produce self-reflexive subjects capable of instituting the self-surveillance identified by Foucault as essential to be exercised by the willing subject to exercise independent thought and actions.

Having interrogated the RNPE statements on environmental education through critical discourse analysis, I now provide insight into the 'voices' and experiences of those involved in the policy process in the next two chapters.

CHAPTER 9

POLICY CONSTRUCTION AND INTERPRETATION: DEEPENING POLICY INTERPRETATIONS THROUGH INTERVIEWS

9.1 Introduction

To provide more insight into the genealogy of environmental education policy in Botswana and complement what could be limitations of critical discourse analysis and the historical records review in the previous chapters (6 and 7), I extend the genealogy through an interpretive analysis of interview data. This chapter focuses on key decision-makers' viewpoints focusing on policy conception, construction and interpretation. It examines policy conceptualizations, understanding and intentions of policy-makers. It is based on the officers' interview results and addresses conceptual issues related to environmental education policy issues. It employs post-structural perspectives to analyze contextual issues related to the genealogy of education policy, and decision-makers' understandings of the policy process. It examines issues and structures providing further insight into the historical factors that have played a role in policy construction.

Officials interviewed were either directly or indirectly involved in the genesis of environmental education in Botswana. Some were in the forefront, campaigning for incorporation of environmental education into the formal curriculum. Some participated in conferences calling for incorporation of environmental education into the curriculum while others were consulted during the RNPE consultation process (see chapter 6). Others were education officers charged with the responsibility to implement new policies such as the RNPE. The chapter interrogates decisions made, their origin and their implications. It also interrogates initial decisions to trace the key players and their roles and attempts to understand why they were involved as well explore their initial understanding of the policy and its implications.

9.2 Policy conceptualization processes

A genealogy of environmental education processes reveals that both international and local players, and the material reality of environmental degradation (see chapter 2, sections 6.5.3, 6.6 and 9.2.1 - 2) influenced its introduction into the curriculum. As indicated in chapters 2 and 6, these factors could be traced to the early 1970s with the introduction of the wildlife clubs in schools as extra-curricular activities and the developments leading to and arising out of the Rio Earth Summit of 1992 (see chapters 2 and 6). The key players identified in this research include international and national NGOs, bilateral assistance, local groups and individual inputs and conferences. The interview respondents repeatedly mentioned some of the players identified in the research process (see chapter 6).

In trying to understand the genesis of environmental education in the curriculum it became apparent that it would be important to trace the origin of the RNPE, which actually introduced environmental education into the education system. The research respondents proposed a number of reasons why environmental education was incorporated into the system. Most of them agreed that the education system itself was becoming old fashioned while similar systems around the world were undergoing transformation to cope with the rate of development. The next sections provide further insight into the genesis of environmental education in the education system as perceived by research respondents. Further insights into policy interpretation are provided in chapter 10.

9.2.1 External influences

The respondents described a number of external influences shaping the introduction of environmental education into the Botswana education system. One of the reasons given related to technological development around the world. One of the respondents explained that

> … prior to 1994 the last commission was of 1977. In between 1977 and 1994 there has been a number of things that happened in terms of development of education in general and the world becoming smaller and smaller, other things

> from outside the country including technological advancement and other things affected us. It was against this background that we had to review our education system. So we needed to improve on what was taking place. (PB2)[4]

Another important point raised concerned the slow change of educational processes and pedagogies, and associated changing times. The educational process and teaching methods were said to have been slow to change and to keep up with the times. Students were leaving school inadequately prepared. One respondent argued that

> … to me the Revised National Policy on Education (RNPE) came about because time was changing and yet the educational system was not. Children just coming out of the school were not prepared to meet job requirements or needs. I think that is why there was revision of the last education policy. (DM4)

The respondents felt that curriculum change was influenced by global trends demanding a response to social and environmental change, and that is it was in response to the deteriorating state of the environment that Botswana was compelled to include environmental education in its Revised National Policy (see sections 2.2 and 6.5.3). One of the respondents argued that "as an African country we took environmental knowledge and understanding for granted because we were so much dependent on it, rightly so because we knew how to live in harmony with the environment because it was a source of food, source of livelihood" (WT6). Other factors, such as population growth and industrialization, also introduced environmental problems that needed a change in the ways Batswana related to the environment.

Another respondent (DM4) felt that the push was from the World Conservation Strategy (1980) to have a country strategy (see section 2.2). It took over ten years to prepare the National Conservation Strategy (NCS)[5], following the United Nations push for all countries of the world to develop their own National Conservation Strategies and it was eventually approved in Parliament in 1990. For all that, environmental education "was only mentioned in one line, that is to raise environmental awareness" (DM4). The respondent felt that this was not enough as far as environmental education was

[4] All respondents were given letter codes for ease of reference and to protect their identity.
[5] The National Conservation Strategy was approved by Parliament in December 1990, ten years after the World Conservation Strategy (1980).

concerned. Moreover, it was too vague, because raising awareness does not mean people would change their attitudes. So "there was need for a push to have environmental education in the curriculum, but many people felt that it was premature then to push" (DM4). The next significant event was the National Planning Conference on environmental education, which was held at the University of Botswana in October 1991 (DM4) (see sections 6.6.4 and 9.2.2). Another interviewee confirmed the contribution of international influence, and attributed the introduction of environmental education into the education system through the RNPE to international obligations the country committed itself to through signing international treaties and protocols. The respondent observed that "there was a growing demand on us as a country because we were signing international obligations which need us to call for change. I think that is why there was change of thinking to introduce environmental education" (WT6).

Another global event mentioned by the interviewees was the United Nations Conference on Environment and Development in 1992 (see sections 2.2 and 6.6.4), which also reinforced the call for public awareness, and training in matters of the environment (DR3). Another respondent said "there was a major opportunity for educational reform on issues of the environment in terms of the UN Conference on Environment and Development" (PB2). One respondent added that the "Rio Earth Summit also helped to motivate action taking on the side of our government who corroborated this. So it was actually for the country resources as you may be aware that they are not abundant" (OD1). It was also revealed that a bilateral project called the Natural Resources Management Project – funded by USAID (the Junior Certificate I Programme), which was instituted in partnership with the Ministry of Education, was one of the conduits through which, environmental education policy was influenced by the international community (DR3[6]). The respondent explained that

[6] Respondent DR3 has been with Department of Curriculum Development and Evaluation before environmental education was introduced within the education system. The department is charged with the responsibility to ensure environmental education curriculum development among other things. He has been with the Department before environmental education was conceived in the formal sector. He therefore has a rich historical knowledge of what transpired before the RNPE legitimised environmental education in the national education system. He has participated in conferences, consultations and material development related environmental education before and after the incorporation of environmental education into the education policy.

> It was under this programme that environmental education was initiated and promoted. An officer (J. Reed) was attached to the Department of Curriculum Development and Evaluation as an Environmental Education Advisor. He initiated the production of environmental education videos on Botswana's environment. Other projects included the production of a booklet on children's stories on the environment from Francistown Schools for primary and junior secondary levels. In addition curriculum development officers were trained on material development. Workshops on environmental education were conducted around the country, particularly in colleges of education (DR3).

The above narration was corroborated by another respondent who explained that,

> The United States of America International Development/Natural Resources Management Programme (USAID /NRMP) put a lot of money into the curriculum projects, like the Needs Assessment Project and training some of the curriculum officers in material development. After that they started the National Conservation Strategy video. In 1992, they started teacher training workshops at Gaborone Game Reserve. In 1993, USAID's NRMP started funding DWNP and the University of Botswana efforts in environmental education teacher training workshops. The Department of Primary Education at the University of Botswana in conjunction with the Ministry of Education, Teacher Training and Development (TT&D) Project Method officers provided resource persons. Myself and Dudu Mogojwa were involved in planning of training workshops. (DM4)

As indicated above, interviewees indicated that bilateral influence contributed to the introduction of environmental education in the education system. USAID contributed through funding projects, providing support personnel, and working in collaboration with local NGOs and government departments. One of the respondents pointed out that foreigners who came to work in Botswana from countries where environmental education was already taught (US-Peace corps, Natural Resources Management Project, NGOs, and other international organizations) were putting pressure on the Botswana Government to introduce environmental education (WT6). Another respondent observed that there was a strong advocacy that government responded to comfortably. This respondent differed with others who believed Botswana was pushed or pressurized by international events and the international community. The respondent argued that Government was receptive to the idea of introducing environmental education into the education system and even provided both material and human resources. The respondent explained that

> I do not think there was pressure *per se*, I think there was strong advocacy, it may be seen as pressure, but I wouldn't call it a pressure because the Government of Botswana itself did not feel discomfort in the statements that were being made, advice that was been offered and the capital resources that were being offered to implement it or consult it. They could have clearly said no. But clearly from the advice Botswana was getting especially from its partners internationally, it was apparent that they were doing it out of goodwill, because they have lessons that they were drawing from which they were sharing with us. They were saying this is a good opportunity not to be missed, because you are reforming your education system now, and this is the best time to do it and to me, honestly it did make a lot of sense. I think the question could be how well we took that up, how ready we were to internalize and package our environmental education. But all told and done I think we did seize the opportunity. (MEM7)

The respondent raised a point on Botswana's receptiveness and readiness to take up the challenge of introducing environmental education into the curriculum. The question is, does being receptive to change imply readiness to implement an education innovation with all that it takes to be successful? Evidence from data analysis presented in chapters 7, 8 and 10 raise some doubts as to the structural readiness by the time the policy was recontextualised into different related documents such as subject syllabi. This is discussed in more depth in chapter 11. A further question could be related to the impact of bilateral relations in building capacity amongst government and NGOs to take forward the introduction of environmental education, balancing both pedagogical and epistemological practices (see chapter 6).

9.2.2 Influence of local key players

The conception of the Revised National Policy on Education that introduced environmental education into the education system is connected to a number of local factors. One respondent explained that

> First, there was sufficient ground among practitioners and advocates for it [environmental education] to be incorporated. Secondly, it made a lot of educational sense for it to be incorporated, and you must also remember that there was a major opportunity for educational reform on issues of the environment in terms of the UN Conference on Environment and Development to be attended to. And prior to that were a number of national based consultative initiatives on

> education. So it presented a wonderful opportunity especially for environmental education to be incorporated. (MEM7)

It also emerged from this research that the introduction of environmental education was historically shaped. As a result of development, the population of Botswana had increased with an associated shortage of natural resources (food from the wild). This led to the dwindling of subsistence livelihoods and the need to 're-educate' the communities arose. Historically, children learnt about the dynamics of the environment from parents, their elder brothers and sisters. Through this informal education people had a good understanding of human-environment relations. Another respondent explained that

> But now came a time when development caught up with us, and there was a gap in between. What we used to see as free food was no more and life was also demanding urgent fresh lines … now we have to re-educate our people and say you can no longer cut free food [e.g. wild fruits], that is no more granted [not freely available]. The demands of development were putting too much pressure, population was growing, cattle industry was growing, drought was putting a lot of pressure and people have to open up more land hoping that they will produce more food. So there was lack of environmental education to actually convert those in towns and rural areas because the government was concerned with seeing us engrossed in development. (WT6)

Global trends influenced local developments and civic society and government felt that there was a need to provide environmental education. The respondent revealed that there was resistance from the beginning because those who had to deal with policy development were from the Ministry of Education "but people took it for granted that the issues of the environment are not important because we grew up with these things. Little did they understand that the future generations would not understand the way they understand it today." (WT6)

The key local players included government departments, NGOs, and individuals who supported local initiatives to include environmental education into the curriculum. Some of the local NGOs were supported financially by international organisations. From the government side the interviewees indicated that the Government through the Ministry of Education and members of NGOs fraternity were major players in matters of

environment. There were some among them who had a specific focus on environmental education such as the Kalahari Conservation Society (see section 6.6.2).

As indicated in chapter 6, other significant local developments that pushed for the revision of the 1997 National Education Policy were a series of national consultative conferences on education aimed at gathering information to review the education system. Such conferences included the Selebi-Phikwe National Conference (1988), the Maun National conference (1989) and the Gaborone National Conference on Education for All (1991) (DR3) (See sections 6.2 and 6.6.3). Of relevance to environmental education policy was the 1991 Environmental Education Planning Conference, which attracted both national and international participation. The conference suggested that environmental education should be incorporated to improve the education system. One of the respondents observed that government reviewed the education system because there was a need to improve the education system (PB2). Another indicated that there was a "need by our Government, our nation that environmental education be introduced. It was high time as a lot of other countries were going in that direction" (OD1). The interviewee stated

> The 1991 Environmental Education Planning Conference came up with the recommendations to push for the introduction of environmental education into the curriculum. Then recommendations came out for environmental education to be in the curriculum. The conference was pretty broad based because it brought NGOs and even those that were not active in environmental education then. I think it was a good attempt to bring everybody together. The commitment it got from Curriculum at that time was to have environmental education infused into the Curriculum, although it was slow in doing that. The recommendations that came out of the conference formed the basis that environmental education goes into the Revised National Policy on Education. (DM4)

Although the Revised National Policy on Education legitimized the introduction of environmental education into the education system, it has also been critiqued by some of the interviewees.

> The recommendations from the national planning conference were considered for the Revised National Policy on Education but unfortunately resulted in a minimal watered down paragraph in the Revised National Policy on Education that lacked

> any implementation suggestions/strategies. I believe this directly affects the true implementation of environmental education today - and has affected attitudes of the ministry officials all the way down to teachers – giving them the latitude to disregard environmental education. (DM4)

This view demonstrated how initial ideas were not reflected as expected in the final policy statement after lobbying and making presentations to the National Education Commission. It also shows how the exercise of power to select what goes into the policy can breed tension between initial ideas and policy practice. This also implies that the main policy text is not specific enough. Perhaps this also explains the tensions, contradictions and multiple interpretations associated with it (see chapter 10).

Another key role player was the Kalahari Conservation Society. Its programme started conservation education activities targeting both the general public and school children. The organisation organised the 1991 Environmental Education Planning Conference in partnership with the University of Botswana and the Ministry of Education. During the 1992 National Educational Commission consultations, the Kalahari Conservation Society (see chapter 6) submitted its views to the education commission. In addition,

> Individual members of the Kalahari Conservation Society whose views were respected played a significant role in the evolution of thinking on environmental education. They also made a presentation from a technical point of view, either when the policy was being formulated or when the application was in process. That is when decisions were being made on what to be infused, which ones were carrier subjects, how much is apportioned to environmental education, at what level, how do you spiral it, where does it get intense, how does it take flavour from a particular discipline and in ensuring consistency. (MEM7)

Kalahari Conservation Society's efforts were complemented by the activities of the Association of Wildlife Clubs of Botswana (now called Association of Environmental Clubs of Botswana[7]). The Association has been described as one of the major players in the history of environmental education in Botswana by some senior and former government and non-governmental organisation executives. I interviewed three former

[7] AWCB has changed it name to Association of Environmental Clubs of Botswana (AECB) to accommodate a range of environmental issues instead of focusing on wildlife.

executive committee members of the Wildlife Clubs Association of Botswana[8] (See sections 6.6.4). They described how the Association operated and pushed its agenda forward to ensure that environmental education was formalized into the national education system. The interviews indicated that Wildlife Clubs Association of Botswana influenced the incorporation of environmental education in the national curriculum in several ways prior to the 1994 Revised National Policy on Education. The Association influenced both classroom pedagogies and epistemological development through the production of learning and teaching support material.

An interview with TG about the contribution of the Association of Wildlife Clubs of Botswana revealed that it started as a Wildlife Clubs movement in the 1970s after seeing the success of wildlife clubs in East Africa, Kenya and Tanzania. Through European Union support, the Clubs were transformed into an association. The Association is housed under the Department of Wildlife and National Parks (DWNP). Another former executive member of the Association felt that it had made a tremendous contribution to environmental education policy processes from school level to national policy formulation. In classroom discourse the clubs played a major role as they taught students about wildlife and about the environment. Wildlife Clubs were initially the only formal group concerned about the environment and as time went on some of the former club members "went to the universities, became teachers and into the civil service becoming part of decision makers" (WT6). The Association "grew such that now it began to debate issues, produce material and influence policy decisions. There was an urgent call to introduce environmental education." (WT6)

From the interviews it emerged that the association had organized

> … a series of meetings with Department of Wildlife and National Parks, Ministry of Education and permanent secretaries to debate the introduction of environmental education. There was a time even before the Commission that Minister Kedikilwe was invited to open a Wildlife Clubs Workshop. We were beginning to change from trips to workshops. We were even looking for funds to support teachers' workshops at school level; it was actually moving away from

[8] Document analysis has also revealed that AWCB/AECB played a role in the history of environmental education in Botswana (see chapters 2 and 6).

> moving about to a formalized body. We also wrote submissions to the Department of Wildlife and National Parks, Ministry of Commerce and Ministry of Education suggesting that environmental education be formalized. There were so many co-incidences, in 1990 there was the National Conservation Strategy and in 1992 there was the World Earth Summit. We had the Kalahari Conservation Society and other NGOs in the country adding voice and they were gaining momentum. I think the Wildlife Clubs Association played a major role in terms of implementation and lobbying for environmental education. So by the time the Commission came, our voice was strong. (WT6)

The Association targeted learners and teachers (who were the club coordinators). One of the interviewees argued that by targeting the school population they were indirectly influencing curriculum "in the sense that our efforts were targeted at sensitizing the school population about the environmental issues at school level" (CM9). At a higher level the club members were privileged as they interacted with officers from the Department of Curriculum Development and Evaluation. The Association was involved with the production of material for primary school. It also

> Organised workshops and published some books on environmental education activities run by clubs such as bio-parks, fish ponds and litter picking etc. It was good then as we were following the Cambridge Overseas School Certificate[9] syllabus, which was following the British system. But the perspective we were coming from was that we were saying let it have an afro-centric approach, we were saying let's follow for instance in Botswana how we used to relate to the environment, indigenous knowledge, traditional ways, for instance. These were some of the things we were saying as we interacted with people. (CM9)

The Afro-centric and indigenous perspectives emerging from the above discourse were not reflected in the policy statement and subject discourses (see sections 6.6.2, 7.2 and chapter 8), as these appeared to have been more strongly influenced by previous syllabi than by local discourse (see chapter 11 for further discussion). The Association also developed curriculum guidelines that were drafted and presented to the Ministry of Education. The Department of Curriculum Development and Evaluation "incorporated some of these into social studies and other subjects. So, we actually saw it permeating into the national curriculum" (CM9). It was revealed during the interviews that some

[9] COSC – the Cambridge Overseas School Certificate is equivalent to the Botswana General Certificate of Education or grade 12 at secondary school.

members of the Association were privileged to sit in the curriculum panels and subject task forces where they seized the opportunity to influence decisions regarding the infusion or integration of environmental education.

> Some of us who had the chance to sit in subject panels such as mathematics had influence as we used to say no even in mathematics, why can't we have tables/graphs on wildlife migratory patterns, on camels, giraffes, etc. rather than abstract things. Even in Setswana there are things that you can actually get learners to do. People thought environmental issues were after-school activities, but we used to look across and say where in the curriculum we can have environment integrated. Even for outside the classroom, we used to sensitize students and say even at home you know there is a place where you can go and dump litter. (CM9)

The interviews revealed that the Department of Wildlife and National Parks was another key role player although they did not provide direct resources to schools. The Department played a crucial role in the history of environmental education in the education system and influenced decisions to introduce environmental education into the education policy. However, the Ministry of Education officials did not mention it as one of the local key players in environmental education and by so doing they appear to be subjugating its role. The Department of Wildlife and National Parks operates through the Association of Environmental Clubs of Botswana in schools. This has been going on since before the 1994 RNPE. One respondent explained that the aim of the Department of Wildlife and National Parks was to use clubs as its outreach or extension programme. Through the clubs Department of Wildlife and National Parks reached schools and ultimately the community in terms of information on conservation issues. "Even in countries such as Tanzania and Kenya, they used the clubs as a forum to reach the communities" (TG5). The respondent also revealed that "the second part was to engage students in more practical or hands-on activities regarding wildlife issues in the curriculum"(TG5). It also emerged through interviews that the conservation education component was initially introduced by US Peace Corps funded by African Wildlife Foundation (AWF). The programme was reviewed and found to be a success, it needed to be strengthened or broadened from schools to the community as it was initially introduced by people from outside the country (Peace Corps Volunteers) in schools, where a language problem arose

(TG). From 1975 the government created the Conservation Education Unit and took over the programme targeting schools, mainly secondary schools (TG5).

The Department of Wildlife and National Parks' role has focussed on teacher in-service training and learners' environmental awareness. The interest of the Conservation Education Unit was to work with schools to see environmental education in schools not only taught but practised. However, the interviewee expressed disappointment "as in most cases environmental education is mostly abstract, taught in class not taking learners out." (TG5)

The Association of Wildlife Clubs of Botswana, although registered as an NGO, is used as an outreach arm of the Department of Wildlife and National Parks. The Department supports it financially, with personnel, office space and with transport. The Department has established game reserves/parks, some of them with well-established environmental education programmes. One of the initial problems was that the reserves and parks were far from schools. "Now these reserves are established near major population areas like one in Maun and the other one in Gaborone and one is coming up in Francistown" (TG5). This has reduced the distances learners had to travel from schools to get to the game reserves. Teachers are able to travel to these reserves between lessons. The environmental education outreach programme centres started another programme of mobilizing schools to start utilizing school grounds as a learning resource. The Department of Wildlife and National Parks did not only support the Association of Environmental Clubs of Botswana, but also joined other forces like the Department of Water Affairs, Curriculum, and National Environmental Education Committee to promote environmental education (TG5).

9.3 Policy interpretation and understanding

To extend the genealogy of environmental education policy further, I interviewed research respondents for their views on the infusion strategy adopted by policy-makers. The interviewees were asked to give their interpretation and understanding to establish what was the initial understanding of the policy and its intentions. I was particularly

interested in the decision-makers' initial understanding of *infusion*, their views on *attitudes and skills* and whether the Revised National Policy on Education reflected their *expectations* for the policy.

9.3.1 Infusion of environmental education into the curriculum

The 1994 Revised National Policy on Education stipulated infusion of environmental education across the curriculum as an appropriate approach/mode. One of the respondents gave a 'totalizing' and politically centered response by saying

> *we* said environment is one of those areas coming out from international scenario and also impacting on our country as well and as a result *we* have the commission saying let *us* address the international call which says let *us* have people trained to be able to interact with the environment in a friendly manner. So it was important to incorporate environmental education into other subjects. (RTS8)

The response from an interview with another senior officer about the Government's preference for the infusion method was as follows:

> The reason why the government chose the infusion strategy is because of two reasons, one is because of the diversity of the subjects we have in the curriculum. There are many subjects in the curriculum. The best way to attend to a lot of environmental problems was to use the method of infusion of environmental education, but only since there are other subjects in the curriculum. The second reason being that environmental education is not treated as an entity, it comes into a number of subjects and there are subjects in which it can be treated well but there are other subjects it has to be integrated into. So we are using the method of infusing and integration. (DR3)

A former Senior Education Officer in the Ministry of Education corroborated the above statement. He was in charge of the incorporation of environmental education into the curriculum at the initial stages. He summarised the reasons for environmental education infusion:

> There were a number of reasons advanced, not particularly unique to environmental education but really dictated by circumstances of limitations of the resources. The most critical limitations were lack of time and human capacity. There had been no teachers trained as specialists in environmental education, so it

> would never make sense to make environmental education a single subject on its own immediately, that was really a matter of being magical. Secondly, environmental education was seen to be offended by the disciplines when they propagated certain behaviours that negated what it wanted to do, so the best thing was to ensure that those disciplines are in conformity with the principles and ideals of environmental education to begin with. And two, where would you like to have the content if it was convenient to have it in Science discipline, have it there. You optimize the use of your resources, time, human resources and financial resources when you go for infusion approach. Lastly, there was a compelling argument that infusion gives an opportunity of ensuring that practice and discipline become a lifestyle, more than being learnt to commit to memory. (MEM7)

These views were articulated and in many ways, supported or corroborated by other interviewees. It is clear from the genealogy of environmental education that the officials favoured an infusion strategy as it is possible to cut across the curriculum. They did not favour a single subject that would require subject specialists.

Another respondent (PB2) extended others' perceptions of the infusion strategy by adding that

> At the beginning we asked the same question and the argument was that, on 1) the curriculum is already flooded so we cannot create another subject, we do not need another subject, and 2) we had introduced it as a subject other teachers were going to ignore it and we wanted everyone to recognise that it is everyone's affair. As a subject some would say it is not our problem. (BP2)

Another respondent (RTS8) felt that government resorted to infusion because there

> … were competing subjects and learning areas put forward, e.g. performing arts and tourism awareness are some of the areas. So among the competing subjects, it was found necessary to infuse it rather than making it a subject so that it is there in all other subjects. It was both time wise and the logistics that it was seen to be better to infuse it rather than retaining it as a subject.

It emerged from the interview that infusing was favoured "because everybody needs environmental education and a gap was going to be created if it was to be offered to other groups while excluding other learners" (DR3). It also emerged that the infusion method "was adopted based on the experience of other countries" (DR3). Another interviewee

from an NGO felt that government resorted to the infusion strategy because it offered a good opportunity to say "we are doing it" (WT6). The respondent argued that, "if you look at it critically you would find that they are not doing it" (DR3). The respondent favoured infusion at primary schools and a single subject at tertiary levels in preparation to produce experts. For instance, "graduates need not only to be able to teach but also to plan and research, create methodology, and produce the material" (DR3). This challenges the infusion strategy. It shows tensions between initial perceptions and what is taking place on the ground. I also asked the respondents about their understandings of the *right attitudes and skills*. Their understandings are provided in the next section.

9.3.2 The perceptions of respondents on the 'right attitudes and skills' in environmental education

The respondents shared their personal perceptions of what they think the RNPE meant by the 'right attitudes and skills'. Although these were personal perceptions, their interpretation of the policy was not conflicting or contradictory. Interestingly, all the interviewees had a 'totalizing' interpretation of the 'right attitudes and skills' towards the environment. They felt that 'we' or 'people' lack respect for the environment and skills to take care of the environment. Although they were not able to recall exactly what was in their minds when they made the recommendations to government, their personal perceptions are closely related, with same views slightly more expansive than others. However, some provided an extension of what others understood to be the right attitudes and skills.

One of the respondents (RTS8) argued that appreciation and awareness create necessary attitudinal change. "There is high possibility that learners would appreciate the environment and if everyone appreciates the environment there is a likelihood that we will interact with it in a manner that would show respect to the environment" (RTS8). Another interviewee (PB2), indicated that his concern was for environmental attitudes, saying

> … even in our generation there is no right attitude to the environment. There should be some kind of training to change some attitudes. The hope was that with [our] attitude changed we can teach our children to also change their attitudes. We want the next generations to be taught the right attitudes so that when they grow up they have internalized the right attitudes unlike ourselves. Skills were on how to conserve, for instance water and animal species. So I remember this was done in partnership with NGOs.

Another respondent described the right attitudes as "to realize that we are part of it" (CM9). The respondent elaborated this point reflecting a 'totalizing' approach (using *'we'*) rather than just individualizing it (using '*I*'). Another respondent attributed negative attitudes towards the environment to personal, educational and economic achievement. The respondent observed that

> I just realized that the more we get educated, access better economic possibilities and live better lives we might say our daily lives have improved, the more we get further away from thinking we are part of the environment and it has no role to play in our lives anymore. People just think that things will get on as they are and our lives will be better and we will just take more and more from the environment and we are not going to run out of anything. As long as people think that they can pay somebody to pick it up or it is somebody [else's] problem to pick it up we can just throw it away, this is not being responsible. Those of us who have been working in environmental education for several years now, do not see much improvement in attitudes, but still think it lies with the individual. (DM4)

With regard to the right skills, one of the respondents felt that "you need skills to make sure that you do not cut trees, cause any erosion, do not pollute the environment, cause desertification, you recycle etc" (CM9). The respondent argued "children should grow up knowing that the environment is important and is everything around you in terms of maintaining the balance" (CM9). The respondents had expectations with regard to their understanding of the 'right attitudes and skills'. Another respondent indicated that

> From the learners, we were expecting learners to come closer and closer to the environment so that they understand exactly how to take care of the environment. From there we would expect learners to move or infiltrate into the community itself where the learner somehow takes information to parents and at the end of the day we expect society to change its behaviour. But you know even yourself that the attitude towards the environment is still negative. Even your own friends, even your own family sometimes you find things you do not expect them to do. (DR3)

Another interviewee (TG5) understood the right attitudes in terms of the issue of "sustainability taken into consideration, where people are living in harmony with the environment and even caring for it". The respondent gave an example of people who throw cooldrink cans along the road when travelling. The respondent complained about lack of change happening at grassroots level, changes in policies. "There are good policies but when it comes to practice we have problems" (TG5). Another respondent (MEM7) sees the 'right attitudes and skills' as knowing what is right for the environment and knowing what you can do to sustain it so that it sustains you as well. The respondent felt that it is pathetic not to know what is right for the environment when one lives in a country that does not have resources in abundance like Botswana. He explained that

> There are limitations of resources like fresh water for instance. If you pollute the water in a manner that you will need new water, completely new and the heavens above us does not give us new water that is not right. If you are a lay person in terms of your economic thinking and think that when you throw litter as you drive in the street you are creating employment that is not right. If you think that owning 6000 cattle on a limited piece of land, have them grazing continuously and think grass will grow and we experience periodic drought then you are not right. (MEM7)

The explanations were varied implying that different perceptions of what the policy says may lead to different messages being shared with students at school level. Although varied interpretations of what is perceived as the 'right attitudes and skills' was evident, a common understanding of what was initially perceived, as 'right' when the policy was conceptualized did not emerge. Even though the concept of 'right' carries value judgments, it also reflects certainty by the policy text author.

9.3.3 Environmental education in the revised curriculum

The respondents were also asked their impression about the statements on environmental education in the RNPE and curriculum. Some were of the opinion that as the RNPE statements on environmental education are not clear, they lead to a host of interpretations. One of the respondents (DM4[10]) felt that the policy is not clearly reflected in the revised

[10] This respondent is a member of Birdlife Botswana. She is a member of the Kalahari Conservation Society (KCS) Education committee, Somarelang Tikologo public education committee, National Environmental Education Committee, and National Environmental Education Panel. She has been

curriculum because the policy itself "is so vague, it let the Ministry of Education and teachers off the hook, it lacks any strategies or suggestions as to how to implement it, just let everybody off the hook". The respondent felt that this is why there is lack of support from officials at the Ministry of Education especially at the highest level. Some teachers who felt that they were not supported also mentioned this (see section 10.5.3).

Another respondent from the Association of Environmental Clubs of Botswana felt that the policy articulates what they had been advocating although not completely as the wording is different and some points were missing. He felt that the crafting of the policy statements was weak, vague and unclear, but having it included in the RNPE is better than nothing, since one can then argue for modifying it. The respondent felt that the policy is a good starting point but noted that there is no forum to review or monitor the policy statement. One of the respondents felt that

> After the Revised National Policy on Education there should have been a working committee to look into how environmental education in Botswana should be, [articulate] the specifics. What is going on is that Government is serious about it, that is why there is a policy; [however] even a sentence in a government document does not mean a lot unless you operationalize it as a government. (WT6)

As the interviewee stated, the establishment of the environmental education office in the Department of Curriculum and Evaluation meant very little as the office was not given the mandate to make any changes to the policy prescription. One respondent observed that "It was a lip service to say the office is there then what do you do? What was needed was a plan to say what do we need to do next. There is no structure, no power and plan to operate" (WT6). There were actually mixed feelings about what the policy says and its initial intentions. Some respondents felt that there are differences even between what the National Education Commission says and the Revised National Policy on Education.

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participating in environmental education processes since the early 1990s before the conception of the RNPE. Some of the activities and projects she participated in include environmental education material development and production under DWNP, KCS, and AWCB, NRMP-USAID/Curriculum Development and Evaluation and the UB/DWNP EE programme. She participated in the 1991 Environmental Education Planning Conference and other forums that pushed for the incorporation of environmental education into the education system. She possesses a rich insight into environmental education history in Botswana.

> … when you look at the report of the Commission it is stated very clearly that Wildlife Clubs were going to play an important role in environmental education. That statement is very rich and actually recognizes that the Wildlife Clubs played an important role in environmental education. My worry is still in the extension programme, the Revised National Policy on Education is biased towards formal education. There is very little as far as environmental education is concerned in the non-formal education. (TG5)

The role of Wildlife Clubs is mentioned in the Commission's report but disappeared when it came to the policy statement on environmental education. It was subjugated, despite its historical significance primarily by the nature of policy discourse, which needs to be broad and non-specific to allow for multiple articulations. The policy was not stipulated in detail. My view is that policy does not need to be too prescriptive, nor should it be too restraining. For instance, for the RNPE to define the role of the Association of Environmental Clubs of Botswana in the policy statement would have had implications for the status and participation of other stakeholders as far as recognition is concerned. Moreover, it would be impossible to stipulate too much detail in a policy statement, including pedagogies. A policy should be broad enough to allow practitioners to operate within some boundaries. The constraining boundary of the RNPE is its stipulation of the infusion approach, which requires integration across the curriculum, providing some points for implementation. Practitioners, particularly curriculum developers, could provide more direction on modalities of how it was to be implemented without causing any tensions.

9.4 Policy -makers' Expectations from Teachers and Learners

The interviews also focused on respondents' expectations of teachers and learners in view of what the policy says. Most of the respondents were inclined to focus on their current expectations. However, some were able to focus on policy expectations. It emerged that the respondents had high expectations of teachers and learners. Some respondents restricted their expectations to classroom teaching and learning outcomes while others had a broader understanding and interpretation of the policy and expected the school (both teachers and learners) to have a pastoral influence on the community. An interview

with DR revealed that he expected many things from teachers and the policy is not implemented as stated. The respondent explained that

> … we expected the teacher not only to teach, but to participate within the school, then move out of school to involve the villagers. But whether that is happening is open to debate honestly, but there are schools, where you can tell that there is something taking place. Some of them still need a lot of encouragement. But if you look at the policy you will find that if it was implemented the way it was articulated it would probably make a big difference. (DR3)

Another interviewee (PB2) mentioned that he expected too much from teachers like changing their attitudes and appreciating in-service training. He also expected school managers to support teachers in particular. He was actually disappointed because he "expected teachers to be excited about the whole idea of environmental education because it was more realistic and practical, it made more sense than even mathematics but that did not happen" (PB2). The respondent continued to explain that some teachers may have been influenced by the belief that "unless you have been given training at a college it is not training" (PB2[11]). It became clear from this interview that there was a perception that teachers do not appreciate in-service training organized and run by education officers and NGOs, and that they preferred college or university training. However another respondent (MEM7) had a different experience with teachers when environmental education was introduced. He explained that,

> When we started I was expecting teachers to say no this is too much, too difficult, I am not trained in it, we couldn't see it. But I was actually surprised because they did see it, conceptually and in the training of trainers, from pre-service and in-service they actually saw it. From learners I was expecting curiosity and to a large extent these expectations were fulfilled. However, I must say that when teachers were teaching a new reality emerged which should not have surprised us. Our education system is pyramidal, is very examination oriented, and as one progresses becoming more 'successful' in the education enterprise, they do not prioritize those things that are not examined, as they ought to.

[11] The respondent is a former coordinator of a School Wildlife Clubs, Principal Education Officer and had attended the 1991 Environmental Education Planning Conference that recommended the inclusion of environmental education into the education system.

From the above, it is clear that the respondents had varied expectations from teachers and learners. The expectations included changes in attitudes, and an expectation that environmental education would be rejected or neglected as it is non-examinable.

9.5 Policy implementation in practice

The respondents had their own understanding of how the policy was to be implemented. The views below reflect the respondents' interpretations of the policy statements as contained in the RNPE (see section 7.2 and box 7.1). This section provides the respondents' views on teachers' understanding of the policy and how the policy was to be implemented. It provides more insight into the genealogy of the RNPE by probing the respondents' initial views on stakeholders' expected reactions, the role of environmental education, and their views on teacher training.

9.5.1 Respondents' views on policy implementation

One respondent (DM4) observed that although recommendation no. 44 in the Revised National Policy on Education (see box 7.1) was vague, environmental education was to be implemented through curriculum changes by the Environmental Education Officer based at the Department of Curriculum Development and Evaluation assisted by the Environmental Education Panel. With regard to infusion of environmental education DR3 said

> The intention was to have teachers teach environmental education concepts within the content of their subject area, where they find it possible they would always include environmental education. If you look at Science for instance it has a lot of environmental education content, but if you look at other subjects like Design and Technology where they use a lot of material from nature, they have to address issues of environmental education so that children know exactly how to treat the environment especially when they want material for design and furniture making and so forth, they know exactly where the wood comes from. In other areas as well, like issues of paper they should know exactly where this comes from. Even when you deal with issues of fuel, they should know the effect of them using fuel at home and how they collect fuel. So we really want them to infuse or integrate into all those areas. (DR3)

One respondent (DM4) felt that the Environmental Education Panel decisions are ignored. The Ministry of Education authorities exercise their power by ignoring the experts' advice on environmental education infusion into the curriculum. This was interpreted by the respondent as lack of support by the Ministry of Education, raising a question of institutional power relations. It was intimated that the input from the Environmental Education Panel was not fully incorporated into the curriculum. An example cited was the development of Environmental Science syllabus, where the panel participated but its inputs were not incorporated. This opinion indicates that slippages that may occur between policy and its interpretation for implementation are often power-related. It also indicates different levels of understanding between the Environmental Education Panel of experts and Curriculum Development Division (CDD) management. This has implications for the final implementation of policy statements at classroom level where teachers apply their level of understanding to the curriculum. One respondent explained that

> After all the work with the environmental education panel and the recommendations for infusing environmental education into the curriculum there is little support. It does not have support from the curriculum officers. I know there have been a lot of changes in the environmental education curriculum office. I was disappointed when the lower primary school syllabi came out. Even though we have a section on environmental education, I feel together with other people, including officers from the Ministry of Education, that even after all the work we did with the environmental education panel, there is less environmental education in the revised primary school curriculum. The panel was surprised that they did not see the final draft of the revised curriculum. (DM4)

9.5.2 Responsibilities and role of key players in environmental education

Although theoretically environmental education is now in the hands of classroom teachers, it is still considered the responsibility of the Association of Environmental Clubs of Botswana teacher/advisors in the government schools. A respondent (RTS8) felt that in long-established private English medium schools environmental education is more fully infused across the curriculum. This implies that private schools are actually doing better than government schools. One of the interviewees felt that there is a need to evaluate the impact of the policy beyond the classroom to find out whether the

information has filtered through to the community in terms of changing their attitudes towards the environment. The respondent explained that

> For the curriculum, we need a core component in which we can evaluate teaching and learning and see how far teaching and learning has an impact on the environment. For instance, we still see people throwing litter through the windows, we see litter along the road, cattle posts are overgrazed, and these show that there is something we are missing in teaching and learning. As much as we infuse environmental education, there is need to monitor and evaluate the programme and see if really what we teach is having an impact on the environment. (CM9)

This school-community impact discourse was also expressed by teachers who felt that their effort in the classroom should be complemented by adult environmental education at community level (see section 10.6.8). This would call for a strategically planned public education programme that would target specific groups including parents to promote environmental education activities and ethos. Another implementation concern raised by the respondents related to the role of the Department of Teacher Training and Development. Its participation was rated as being inadequate as it does not give environmental education teacher training the status it gives to other areas. One of the respondents observed that

> For instance with HIV there is attention paid to it, there are people responsible for it and those financing it, but it is not the case with environmental education. But to me it is as important as other social issues and should have been given the same status it deserves. I think issues of the environment affect people and families directly. So it does not matter, we have to review our strategies because I do not think we have succeeded, nor do we really see which way we are going in environmental education. (PB2)

Another query raised by the respondents was with regard to the role of stakeholders such as the Department of Environmental Affairs, Department of Wildlife and National Parks and Ministry of Education. The respondents felt that the Ministry of Education needed to support teacher education programs instead of focusing on learners in the formal sector. One respondent (WT6) felt that Government departments should focus on teachers who are experts in teaching who could effect social change. He explained that there is confusion between what the Department of Environmental Affairs (DEA) and

Department of Wildlife and National Parks are doing and what the Ministry of Education should be doing regarding non-formal environmental education. He felt the confusion was caused by lack of synergy between ministries and their departments on environmental education activities. The respondent felt that if a department has a programme to enhance environmental education in schools it should focus on the training of teachers instead of saying the Department of Teacher Training and Development is there to train teachers even where capacity does not exist. The respondent felt that sending officers around to schools teaching children would not solve the problem. Officers such as those from the Department of Environmental Affairs and Department of Wildlife and National Parks should be going to schools to support teachers. This suggestion is in line with the partnership approach. The respondent's worry relates to lack of policy synergy. Policy synergy would help stakeholders to understand each other's programmes and would help avoid negligence or contradictions and tensions.

9.5.3 In-service teacher training on environmental education

In-service teacher training was another implementation strategy that was queried by interviewees. They felt that if infusion of environmental education is taken as a viable strategy, teachers needs to be prepared. A programme could be put in place and the targets set for monitoring and a periodic training plan appraisal. This was one of the policy areas that would eliminate varied interpretations at school level and would ensure the success of the policy objectives. The Department of Wildlife and National Parks had been running training workshops through the Association of Environmental Clubs of Botswana to equip teachers with the necessary skills to implement environmental education at classroom level. However, there are some queries about this, as raised by one of the interviewees:

> The problem we are having as a Department is that the Department actually established or organised funding for capacity building workshops for teachers to be able to carry out their task in schools. We have problems, the Ministry of Education tends to look at our department as a user department not as partner. The other issue is that we have been left out of the curriculum task forces and panels and yet we contributed a lot when it comes to the introduction of environmental education. If you look at the current curriculum that had been reviewed, for instance social studies syllabus, one of the weaknesses we have identified is that

> you find that the old names of parks are still there and children may be marked wrong if they happen to visit those parks and find that the names have changed. (TG5)

The above explanation indicates that there is limited liaison between the Ministry of Education departments and stakeholders such as the Department of Wildlife and National Parks. It also raises power-knowledge relations among partners (see chapter 11). It was also established that "There is a missing link between the workshop and what is happening in the classroom" (TG5), that is there is no follow-up to the workshops conducted by the Department of Wildlife and National Parks to evaluate the workshops and to see what is happening. There is no formal link between the Department of Wildlife and National Parks and the Ministry of Education to provide feedback. The Department of Wildlife and National Parks can only contribute by organizing workshops but cannot go beyond that to monitor what is happening in the classroom, as this is not one of its mandates. The interviewee felt that the Ministry of Education should "carry over from where we stopped" (TG5). Teachers are supposed to report back to their schools in mini-workshop forums but this is never confirmed as the Department of Wildlife and National Parks never receives feedback from workshop participants. The respondent explained that "We encourage them to have such workshops and they can request for a slot during such workshops for us to come and present. So we never know whether those workshops take place" (TG5).

Synergy between government institutions, their policies and mandates, between outdoor activities and classroom learning is weak, if not lacking altogether. One of the respondents argued that

> Looking at the government as an institution there has been a lot of support from government; however I think the institutionalization of the support has been better, because it seems to have relied on individuals who were supportive then. Some of these supportive individuals, particularly from the Department of Curriculum and Development, had either retired or transferred to other government ministries and departments. There were people who were passionate about it. It is not there any more. You will recall that the Department of Wildlife and National Parks used to have very keen education component; it's not so much as it was in the past years. The problem is I do not see it evolving and developing, it being monitored properly. If we get these kids on educational tours and trips for

> instance, it seems there is no synergy between what they see on tours and what they are taught in class. (MEM7)

This scenario of inertia and lack of development and growth in the field of environmental education is blamed on the political landscape. One interviewee felt that "all the parties are guilty of not taking environment on board, they are relegating it. Equally, people of Botswana are even guiltier for not forcing environment to be a political issue" (MEM7). Environmental issues are not yet politicised, therefore political parties who may pressurize the government to implement environmental education effectively do not take implementation of environmental education seriously. Policy implementers are not pressurized to do everything possible to make sure that it does not become one of the government's embarrassments or a viable weapon for political opponents. "Environment only becomes an issue when it comes to conflict over land use and most of the times it becomes an issue when it comes to land abuse" (MEM7). An interview with one of the decision-makers, who is a politician, also echoed the sentiment on lack of politicisation of environmental issues in Botswana, "except where land issues arise" (PB2). His party, the Botswana Congress Party is the only party that has a section on environmental issues and awareness in its manifesto.

It emerged from the interviews that policy implementation is narrow and dominated by government departments with less support given to institutions such as the university and NGOs. One of the interviewees (MEM7) felt that, "…there should have been incentives and disincentives for supporting the environment and part of these disincentives and incentives should have gone towards developing institutions for environmental education". The feeling of the respondent was that this should have been done to facilitate implementation of environmental education. Institutions such as the university need to support "graduate experts and for teacher training" (MEM7).

9.6 Teacher's acceptance or resistance of the policy

I also interviewed the respondents on teachers' reactions to the introduction of environmental education. The purpose of this question was to establish whether they thought teachers had accepted environmental education or if there were some queries

with regard to its introduction. Some respondents were of the view that teachers had accepted environmental education as was expected of them by the policy. One of the respondents reported that "it is well accepted, in workshops that we have held teachers were really enthusiastic about it, enjoyed what we discussed and cited what they have been doing and what they will do after the workshop". (RTS8)

However, the respondent was concerned that the government has not achieved full implementation in spite the fact that there are materials such as the *Environmental Education Guidelines*. He noted that there is lack of school-based support, indicating that schools still appear to require support to celebrate environmental activities independently. The respondent observed that "I do not remember any school celebrating national water week. There is a big question [associated with the fact] that we trained a lot of teachers but nothing is changing" (RTS8). This could be attributed to techniques of resistance by both the school management and teachers (see chapters 10 and 11). Celebrations of international and national environmental days by schools would seem to be an indication that the policy is not only making an impact but is also accepted and it is recognised. One of the respondents blamed the lack of environmentally related activities on management attitude towards policy and their lack of support to teachers. The respondent said, "I would like to see a vigorous exercise to support teachers at school level" (RTS8). In focus group discussions some teachers repeatedly expressed their dissatisfaction with the support they get from their school management (see section 10.5.3).

It was also felt that some teachers are not fully comfortable with teaching environmental education. For instance, one of the interviewees noted that, "teachers always say environmental education should have a special teacher or post to be remunerated" (OD1). This statement indicates that some teachers either feel that teaching environmental education is an added burden or value it to the extent that it should be granted higher status. The suggestion that it be a special area, may thus be an indication that teachers are either enjoying teaching environmental education, or feel that environmental education does not fit well into other subjects where it is infused, therefore it needs to be separated. During data collection for this study, there were limited indications that teachers are only teaching environmental education as required by the terms of their employment. The

interviews with the respondents about teachers' reactions to the policy implementation revealed that there are mixed feelings about the policy among teachers, some of which require review of the initial policy intentions and policy makers' expectations (see Chapter 10). Policy resistance by the teachers never explicitly emerged from the interviews with the policy makers.

9.7 Summary

Interviews with senior officers and decision makers have provided a number of insights into the genealogy of the education system particularly associated with the historical events leading to the 1994 RNPE. Although the respondents did not provide insight into how the Presidential Commission was initiated and the criteria used to accept environmental education into the education system, they accepted that it was overdue and that historical events were dictating that environmental education needed to be incorporated. It was confirmed through the interviews that there were both international and local influences that shaped the incorporation of environmental education into the education system. Internal influence came from both bilateral and international non-governmental organisations such as the United Nations. Local key role players included non-governmental organisations, institutions such as the University of Botswana, the government organs and individuals. It also became clear that the government was willing to accept environmental education as an innovation into the curriculum. However, there was concern about the absence of clear guidelines as to how the policy was expected to filter from the macro to micro levels. The agents/actors were left with the option of varied interpretation of policy statements and approaches in response to structural obligations.

This chapter has also revealed that the respondents were not clear on what was in their minds (as policy designers) when they thought of the introduction of new knowledge such as 'right attitudes and skills'. However, the interviewees gave their perception of what they thought the policy implied. They gave their perceptions, opening possibilities of multiple interpretations by all including teachers at classroom level. The respondents acknowledged that teachers may perceive the 'right attitudes and skills' differently and many need assistance. This problem could be addressed through in-service training to

avoid “many interpretations of what could be the ‘right attitudes and skills’” (OD1), or to engage the possibilities of plural perspectives.

There is a strong feeling that environmental education is closely related to Science (see section 9.5.1). The interviews revealed that local indigenous knowledge was left out in the final selection of text for the policy statement. It was one of the wishes of key role players such as the Association of Wildlife Clubs of Botswana that indigenous knowledge be incorporated into the curriculum. It emerged that although Botswana was receptive to change, it was not ready with a clear view of how to integrate and infuse environmental education.

It emerged from the research that a genealogy of environmental education in Botswana would be incomplete without mentioning the contributions of the Department of Wildlife and National Parks (Conservation Education Unit) and the Association of Environmental Clubs of Botswana (former Association of Wildlife Clubs of Botswana). The genealogy revealed that these two organisations were the pioneers of environmental education in Botswana, but have in recent years been somehow subjugated. The genealogy shows that environmental education processes evolved from conservation education in the 1970s and found their place in the national education system through the efforts of the Association of Environmental Clubs of Botswana membership and influence as its activities became entrenched in schools and its graduates penetrated decision-making positions. It also became apparent that although the Department of Wildlife and National Parks and the Association’s role is not fully documented in the Ministry of Education records nor mentioned by the ministry officials, this role was mentioned several times during the interviews with teachers and members of the environmental NGO fraternity. They associate environmental education with the Department of Wildlife and National Parks and the Association of Environmental Clubs of Botswana. The subjugation could not be sustained as this study deconstructed the ‘official’ discourse by ‘de-sedimenting’ and ‘eventilizing’ their contributions to environmental education processes in Botswana.

The environmental education genealogy has further revealed that initial in-service teacher training was supported by the Department of Wildlife and National Parks through the Association of Environmental Clubs of Botswana operated by wildlife clubs in schools and later in colleges of education and the University of Botswana. Although the Department of Wildlife and National Parks pioneered the introduction of environmental education in schools it continues to be sidelined by the Department of Curriculum Development and Evaluation. It is not part of the Environmental Education Panel that advises the Department on environmental education policy matters. This scenario implies a lack of synergy between departments and potential sites of tension in environmental education discourses (see section 9.5.4).

Through interviews it was apparent that although there were local initiatives to introduce environmental education into the curriculum, there was both direct and indirect influence from the international community and development partners to introduce environmental into the national education system. The current and former senior Government officials indicated that Government was willing to accept educational reform, although action was slow on the Government's side. It took over ten years for the Government to develop a policy that legitimized environmental education into the education system.

It also became apparent that the interview respondents were essentially pro-policy, although some expressed disappointment with regard to the 'vagueness' of the policy, which missed some of their recommendations and let the Ministry of Education and teachers 'off the hook' by not detailing how environmental education should be implemented. Some respondents felt that the policy is not clearly implemented inside and outside government. There are conflicting opinions regarding the status of environmental education in schools. Some felt environmental education is not taken seriously because there are no incentives such as remuneration and positions of responsibility. Others felt it should remain as an infused component of education to avoid disadvantaging some learners and neglect by some educators, as environmental education was seen to be a broad social responsibility, relevant to all subjects.

This chapter provided insight into the ‘voices’ and experiences of officials who were involved in the policy process providing a different vantage point for a deepening of the genealogy of environmental education in Botswana. In the next chapter I provide ‘voices and experiences’ of teachers who have been involved in policy recontextualization and implementation, providing insights into the genealogy. The chapter also explores associated governmentality.

PART C

TEACHERS' INTERPTRETATIONS, EXPERIENCES AND GOVERNMENTALITY

AN OVERVIEW

The interpretation of the RNPE (and environmental education), experiences and the concept of governmentality are explored through the respondents' views, perceptions and the strategies of self-governance deployed in environmental education policy discourse. Part C examines contextual profiles of the respondents and school community to establish factors that may be influencing a complex environmental education interpretation and, implementation context, and diverse, and often ambivalent normalising strategies. It provides insights into logistical and professional problems experienced by teachers.

The data indicates that there are issues of institutionalisation and power relations at play in the RNPE interpretation and environmental education implementation. This relates to and confirms data in chapter 9. There are some respondents who feel sceptical about change citing associated problems such as lack of transport for educational tours and learning support material. The data also indicates a strong influence of textbooks on governing teaching practices and illuminates the deployment of self-governing strategies, exercised by the teachers in response to the introduction of environmental education policy discourse and associated contextual factors.

CHAPTER 10
TEACHER'S VIEWS, EXPERIENCES AND PERCEPTIONS OF ENVIRONMENTAL EDUCATION POLICY

10.1. Introduction

The previous chapter provided insights into the 'voices' and experiences of the policy-makers. This chapter extends deeper policy understandings focusing on policy interpretation from the respondents' viewpoint. This time, respondents were not policy-makers but teachers from primary schools. The chapter makes reference to the Ministry of Education's (MOE) administrative and curriculum structure which influences epistemological and pedagogical practices. It examines the contextual profiles of schools. This provides a contextual analysis within the Ministry of Education and various school structures and explores contextual issues affecting environmental education policy interpretation. The chapter further provides an in-depth content analysis of the interviews and deals with what the participants said about policy and their interpretations or understandings. It analyses respondents' likes, dislikes, personal competencies and interpretations, the perceived value of the policy to the children and the community, logistical and professional problems. These all provide insight into and inform an exploration of the issues of institutionalisation, power relations and governmentality, which are discussed in this chapter but are dealt with in more depth in chapter 11. This chapter was derived from an analysis of questionnaires and focus group discussion data as well as from school and classroom observations.

10.2 Administrative structure

The Botswana education policy implementation is based on, and facilitated through, an administrative structure which operates from macro to micro levels. The structure has a bearing on how the institutions operate and influences how the policy is implemented in practice in the classroom (see chapter 3). The policy is designed by the Ministry of Education and mandated to different departments for implementation. For instance, the Revised National Policy on Education statement on environmental education is mandated to the Department of Curriculum Development and Evaluation to "provide leadership in

improving the quality of education through curriculum development, review and revision" (Ministry of Education, 2006: 1). The department infuses environmental education across the curriculum. It is responsible for syllabi design, monitoring, evaluation, material design/development or prescriptions for use by teachers and pupils in schools. It operates its mandate through a panel of experts that advises on matters related to policy (see chapter 8).

The second department in the structure is the Department of Teacher Training and Development (TT& D), which is responsible for both pre-service and in-service teacher training based on the national curriculum developed. Once the syllabus is designed and handed over to TT & D, it becomes its duty to make sure teachers are trained and professionally supported. The department trains teachers and provides teacher advice and runs education centres. Most of its services are decentralized to 12 educational regions throughout the country. At primary education level the Department provides a regional teacher support service which includes teacher advice.

The Department of Primary Education is responsible for supervision and inspection of all primary schools (Ministry of Education, 2006). However, some of its duties are decentralized and carried out at district level such as school inspection and material supplies. The provision of transport and day-to-day logistics falls under this department. Employment of teachers is the responsibility of the Department of Teaching Service Management, which ensures that qualified teachers are employed. It also provides teacher regulations and rules on professional conduct and service. It is responsible for teachers' remunerations and social welfare.

The above-mentioned departments are supposed to liaise with each other as they operate through one agent (teachers). The symbiotic relation is meant to ensure that the education system and policy yields the desired results. This form of governance influences classroom practices. In addition to the macro structure, teachers at school level are faced with contextual and structural conditions within which they operate as agents at a micro level. There are extra-discursive practices (non-discursive) such as the socio-economic

situations/conditions that exert a bearing on teachers' ability to deliver and implement the education policy statements. Section A below describes what happens in schools within the Ministry of Education structure to implement environmental education.

Section A

10.3 Teachers and school profiles

This section documents respondents' and school profiles with regard to environmental education status and process. It explores respondents' personal profiles covering, among other things, their age, professional qualifications, teaching experience, their perception of environmental education, institutional support (internal and external), their preferred teaching approaches, the number of learners in their classes, teaching and learning resources and teacher in-service training on environmental education. The study also covers schools' institutional structure, resources (local and external), and school-community relationships. The purpose of documenting and analyzing these dimensions was to establish conditions favouring or constraining the implementation of environmental education in schools. The aim was to establish whether the respondents had been prepared, to explore factors favouring environmental education teaching in the classroom and outside and to gain insight into the institutional setup that facilitates or constrains environmental education implementation. In addition, the intention was to shed light on power/knowledge relationships and governmentality processes.

10.3.1 Education regions

This study was conducted in five schools from four regions. The regions were Northern (Francistown), Central North (Mogapinyana), South Central (Palapye) and South Central (Serowe) (see table 10.1). A total of 35 respondents completed the questionnaire (see chapter 5). Two of the four regions were in urban and semi-urban areas. The choice of rural, semi-urban and urban areas was to gain insight into how context may influence environmental education implementation.

Table 10.1 Education regions and context

Region	School	Context	Number of teachers	Percentage
Francistown/Northern	Monarch	Urban	7	20
Central North	Mogapinyana	Rural	4	11.5
South Central (Serowe)	Mmualefhe and Motetshwane	Semi-urban	17	48.5
South Central (Palapye)	Lerala	Rural	7	20
Total			35	100

10.3.2 Subject(s) in the school curriculum

The respondents who participated in the research were teaching both lower and upper primary school classes and subjects (27 respondents) (appendix 10.2). However, there were some who were teaching specialized areas such as Special Education (8 respondents). Other respondents with Diplomas in Primary Education were teaching at most three subjects. 62% of the interviewees were teaching lower primary classes and 38% were teaching upper classes (see appendix 10.2). All respondents are required to infuse environmental education across the curriculum. The majority of the respondents teaching primary lower classes (62%) believe that they are teaching environmental education while those teaching upper classes are either not sure whether they are infusing it or not, or believe they are not teaching it. The lower primary school curriculum is composed of six subjects including Environmental Sciences and the upper classes do eight subjects (see appendix 10.3). The number of learners per class ranged from 14 to 39 across the research sites (see appendix 10.4). The classes with least numbers consisted of learners with disabilities.

10.3.3 Respondents' qualifications and teaching experience

The respondents' qualifications ranged from a two-year Primary Teaching Certificate, three-year Diploma in Primary Education to four-year B.Ed (Primary) degree. There was one unqualified respondent (with O level certificate) employed on a temporary basis. The majority (18) of the respondents possessed a Primary Teachers' Certificate (PTC). Six respondents had diplomas while four had a first degree in primary education. Six respondents did not disclose their professional qualifications.

The respondents' teaching experience (see table 10.2 below) ranged from five months to 30 years. Eight of the respondents who had graduated in the last ten years had had exposure to environmental education and infusion. Eleven of those who graduated before 1994 only benefited from in-service workshops or courses on environmental education. Nine of the respondents had never had any opportunity to attend environmental education in-service training in their teaching career. The purpose of this section was to establish contextual factors that may influence environmental education policy interpretation, teachers' competencies and their deployment of self-governing strategies in teaching.

Table 10.2 Respondents' length of teaching experience

Length of teaching experience (years)	Number of respondents	Percentages
0 – 5	6	17.3
6 – 10	8	22.9
11 – 15	6	17.2
16 – 20	6	17.2
21 - 25	5	14.4
26 – 30	4	11.6
Totals	**35**	**100**

10.3.4 Language(s) spoken and used in primary schools

Language in an education system serves as a conduit for communication and generating knowledge. Most of the respondents indicated that their learners spoke Setswana (20), English (4), English and Setswana (11) and Kalanga (1). The majority of those who speak Kalanga understand Setswana. Teaching at grade one level is in Setswana even in Kalanga speaking areas. I was interested in the language spoken to establish the relevance and appropriateness of learning support materials that are written in English. Setswana and English are official languages. Setswana is used as a medium of instruction at grade one primary level and learners are exposed to English as a medium of instruction from grade two to seven at primary schools. Teachers reported some difficulties with language. Some complained that the language used was too complex for the learners and translations from English to local languages for pupils were inadequate (see section 10.6.6). This scenario reveals tension between policy and practice which cannot be easily mediated by teachers who are obliged to carry out instructions. It may impact on

epistemological and pedagogical discourses as teachers were not comfortable with code switching[12].

10.4 Common teaching approaches in schools

I asked the respondents about the teaching approaches they commonly use to establish the pedagogies that could facilitate learning and enhance the objectives of environmental education. The respondents indicated that they use a variety of teaching approaches to enhance learning in their classes. All the respondents mentioned that they use learner- or child-centred methods. One of the respondents said, "I use the learner-centred approach and group work method because with learner-centred method it makes it easier for me to understand how I can approach my class" (FG1.6[13]). Another teacher said "the main methods and approaches used regularly are both teacher- and student-centred in addition to inquiry approach which proves to be the best as students work independently and also discover concepts for themselves" (FG3.4).

The approaches included: group work, discussion, lecture, role play, project method, peer teaching, 'look and say' and breakthrough (see table 10.3 below). Of all the approaches mentioned, the child/learner-centred approach was the most popular as 91.4% of respondents mentioned it as the main approach they use in their teaching. This was also evident during lesson observations in the research sites. The document analysis results provided in chapter 8 indicated that learner-centred education is a key dimension of current policy discourse in Botswana. The respondents may have been exercising disciplinary power in response to the RNPE, the syllabi, and the *Environmental Education Guidelines* that suggest learner-centered pedagogy.

Table 10.3 Common teaching approaches

Teaching approaches	Number of respondents	Percentages
Group work	13	37.1
Discussion	6	17.2
Lecture	2	5.7
Peer teaching	3	8.6

[12] Code switching refers to the use of local language to explain complex concepts.
[13] All the respondents in this chapter were allocated codes to protect their identity. The codes are a combination of letters and numbers for both the interviews and questionnaire.

Individual	3	8.6
Inquiry	2	5.7
Project method	5	14.3
Role play	2	5.7
Field excursions	2	5.7
Demonstration	2	5.7
Rotational, drama, expository, discovery, research, experiment, practical, problem-solving, gestures, language experience and 'look and say'.	11	31.4

The group work approach is the most popular approach as indicated by over 37% of the respondents. This was also observed during the lesson observations, as all respondents ended their lessons with grouping learners. The next most popular methods were discussion and project methods. Most of the respondents mentioned a combination of methods. For instance, they used group work for discussion and projects. They described group work as a situation where learners work in small groups, some grouped according to their ability, or with mixed abilities to help one another (FG5.7). From observations, an explanation was given to learners after or before work in groups. Related to group work is pair work and individual methods. Some respondents mentioned cooperative learning where learners work in groups to achieve a particular goal. This is where the teacher and learners talk about a given topic or pupils discuss a given topic. It could be in a debate format or open discussion where learners are given chance to state their opinions. For the mentally challenged learners, respondents use language experience approach and gestures.

10.4.1 Resources used most often in teaching

I asked the respondents about the resources they often use in their teaching to find out what enhances or hampers environmental education policy implementation. The respondents mentioned that lack of teaching resources is one of the constraints in teaching environmental education. However, they listed the following as some of the materials they use: reference books, teacher's guide and pupil workbooks (see table 10.4). One of the respondents also mentioned that they use real objects since they are dealing with lower primary pupils.

Table10.4 Resource materials most often used in teaching environmental education

Books Pupils workbook Teachers guide Posters on animals and plants Pictures Stationery Garden tools Charts Chalkboard Television	Radio Manila paper Words cards Abacus Puzzles Materials from natural environment – parts of plants, soils, water, stones, traditional brooms. Waste materials – tins, bottles, papers and plastics

One of the respondents (QR7) said "I use radio and posters depicting environmental features e.g. bushfires, protected and partially protected animals and a healthy environment". Another respondent (QR1) said that the resources mostly used are reading materials, non-reading materials and human resources (community resources) "although not always available, e.g. others are engaged in their daily work and may report late to requests".

10.4.2 In-Service Teacher Training

To further probe what is happening in schools and in the classroom I asked the respondents about the in-service training in environmental education they had received. There was an indication that some respondents had had the chance to attend some in-service training in environmental education. Twelve respondents indicated that they had never been involved in any environmental education in-service training. However, some indicated that they were involved in the revised curriculum workshop that included Environmental Science for lower primary. One of the respondents explained that "I attended a workshop on environmental problems in Botswana such as waste management and attended the Association of Environmental Clubs of Botswana mobile workshop" (QR13). Another respondent (QR7) who had attended a crash course workshop for the revised lower primary education syllabi explained that they "discussed a number of environmental issues and steps of solving or mitigating them. We discussed project proposals". Another respondent (QR8) had attended a school-based workshop.

Training workshops attended by the respondents included in-service workshops on implementation of 1 – 4 syllabi, school-based workshops and environmental education

workshops at the education centres. Some of the respondents are coordinators of school wildlife clubs which are affiliated to the Association of Environmental Clubs of Botswana. The Association organizes some of the environmental education workshops attended by respondents. Some respondents had come across environmental education in college or university courses. For instance, one respondent (FG5.7) said "I have attended workshops and did environmental education courses in my B.Ed programme" (at the University of Botswana).

The workshops had benefited some respondents who felt that their teaching had improved because of training workshops on environmental education. However, one respondent saw some problems with the workshops.

> It is better because workshops are run, but sometimes you are left confused. In one workshop I attended we were required to do projects, but the time was too short. We had a problem since there was a lot of material given at the workshop but we have very little capacity to implement all these ideas. It would be better to have objective oriented workshop so that we leave the workshops with a thorough knowledge on one or two things rather than a lot of information that cannot be implemented. (FG4.3)

The above excerpt shows how the respondent viewed training workshops and indicates how environmental education implementation may be improved.

10.4.3 Respondents' understanding about the policy and environmental education

The respondents were asked to describe what they know about the Revised National Policy on Education and environmental education. They provided a variety of understandings and interpretations regarding the policy and what it says about environmental education. Some said the RNPE says environmental education should be infused across the curriculum. One respondent (FG2.3) said the policy says "we should integrate". Most of the respondents knew that the policy requires them to teach environmental education in primary schools. However they were not able to recall exactly what the policy said about environmental education.

One respondent explained that “What I know about it is that, in future pupils being taught Environmental Science should be able to take care of their environment and be farmers who have knowledge about their environment”(QR3). Another respondent said

> I know that RNPE of 1994, recommendation number 44 is for the incorporation of environmental education into subjects in both primary and secondary education. It also states that environmental education committees or officers should be in place from the Ministry of Education to local level. (FG4.3)

The respondents felt that the policy stipulated that teachers must be trained in the methodologies at both pre-and in-service levels to make sure that learning and teaching are effective. Another respondent said that the policy “calls for infusion and integration of environmental education across the school curriculum as a response to environmental issues in the country” (FG4.4) and encourages teachers to infuse environmental education. They also mentioned that the policy discusses environmental awareness and change of attitudes and that “there should be clearly defined national goals for environmental education and the ministry to draw up an action plan for the implementation” (FG2.1). These different but related interpretations of the policy imply that the respondents were aware of the policy and had unclear ideas of what they were required to do.

However, there were those who understood the policy differently. For instance one respondent said “It talks about cleaning the surrounding” (QR3), while another respondent explained that “It says the environment should be kept as neatly as possible” (FG5.4). These demonstrate the diverse understanding of environmental education policy statements. These diverse understandings may explain the environmental management discourse dominating in the research sites associated with the implementation of environmental education (see table 10.5 and section 10.4.4). One respondent’s interpretation of what the policy says concerned the community and the environment, moving it away from the classroom. The respondents said “The community will have attractive and conducive surrounding and most of the people will become creative in order to decorate and protect their environment” (FG4.1). There were some (four) respondents who did not remember what the RNPE says about environmental education

and were not prepared to give their own interpretations. All these respondents are expected to be infusing environmental education. It is clear from the diverse responses that some respondents are basing their teaching on the prescribed syllabi objectives and textbooks without thinking about what the policy says or that they may be deploying some normalizing strategies and exercising their disciplinary power based on their existing knowledge and experiences (a deeper analysis of tactics deployed by teachers is provided in chapter 11).

It emerged from the respondents' understanding of what the policy says that numerous interpretations are in circulation amongst respondents in schools. Some were accurately recalling what the policy says while some gave their own understanding which reflects diverse concepts that may be translated differently into policy implementation and teaching. These diverse understandings of policy ranged from the respondents' interpretation of what policy meant regarding environmental education teaching methods, incorporation/infusion, teacher training, to what they should teach about.

10.4.4 Respondents' understandings of the 'environment'

The respondents also shared their perception or understanding of the word 'environment'. Respondents were asked a question on their understanding of 'environment' to establish their knowledge of the content, how this influences their teaching of environmental education and pedagogy. 91.4% of the respondents used the word "surrounding(s)" or "around us" to refer to the environment. Some demonstrated their understanding by giving examples of what the environment entails. For instance, they explained that it includes human beings, plants, animals and/or both the biotic and abiotic (FG4.2).

Table 10.5 Respondents' perception of the "environment"

The surrounding	A place where any living things live
All around us	Everything that surround you, living or non-living things
Surrounding where any living thing including human live	The surrounding in which all living things survive and die
Surrounding where we live	The surrounding in which the biotic and abiotic are found
Surroundings where people, animals and plants live	An umbrella word which include our surroundings, ourselves and other animals.
Surrounding around my place such as vegetation, animals etc.	
It includes human beings, plants, and surroundings.	

10.4.5 Respondents' understanding of environmental education

To establish teachers' interpretation of environmental education I asked the respondents what environmental education means. The respondents gave varied understandings. I asked the respondents the following question to establish their understanding of what they are required to teach. The respondents' understanding/interpretation included environmental education is about "informing pupils about how to take care of their environment, teaching about the surroundings, cleanliness, living and non-living things in the environment" (FG4.2), and "learning about the management of resources, understanding nature and its values including responsibility in conservation and sustainability" (FG1.3). Some respondents explained that it is a "Science or a science subject that teaches about our surroundings, health and safety". (FG6.1)

The understanding of environmental education as Science being the root metaphor for environmental education was common across the research sites. This view created some challenges in practice as it influences interpretation of information and determines pedagogies. From observations, the understanding of environmental education as Science resulted in, for example, focusing teaching about the parts and functions of plants as teaching environmental education. The learners were exposed to one side of 'science' rather than engaging the learners in a balanced discussion on the role of 'science' in shaping the environment, and the role of Science in responding to environmental concerns.

There were those who thought that environmental education means "to teach and learn about the surrounding, looking at the living and the non-living things including human beings" (QR5). This perception reflected the Environmental Science syllabus topics (see section 8.4) indicating how syllabi influences teachers' understandings of environmental education. A related understanding voiced by another respondent was "making someone to be aware of the importance of taking care of the surroundings and the natural resources" (FG6.5), while another one said "environmental education means familiarizing people with how to take care of the surroundings" (FG4.2). The meanings were expanded within the focus groups and in interaction with different schools. For

instance one respondent said environmental education "teaches about health and safety and cleaning surrounding in homes and at school" (FG3.1), while another respondent sees environmental education as a generic term, meaning "the act of developing skills, imparting knowledge and positive attitudes in learners about the use of the environment" (QR5). Interestingly, another respondent included a personal aspect in the definition by saying that it "make pupils aware of themselves and their surroundings and it also encourages them to be aware of the environment" (QR7). Respondents' perceptions of environmental education as Science may be influenced by their understanding of 'environment' and their experiences in teaching Science, and the dominance of this discourse in the syllabus construction (see chapter 8).

The above definitions emphasize teaching about the physical environment. However, there were those who thought they also encompass "change of attitudes, behavioural change and understanding of oneself and the surrounding" (QR4). For instance, one respondent explained that environmental education is a "life long process leading to acquisition of environmental knowledge and development of attitudes, values which reflect a concern for the health of the environment and quality of life of its inhabitants" (QR5).

Some of the definitions encompassed teaching about people, plants and animals and how to take care of the environment, how useful it is in our daily lives and "the way in which human beings should relate with both plant and animals and also avoid land degradation" (FG6.1). The respondents' interpretation of what environmental education is, demonstrates their understanding of the environment in terms of biotic and abiotic aspects. I would think that is why they see it as Science and think it deals with topics that are in the Science syllabus.

The implication of this diversity of definitions of environmental education in practice is that most respondents concentrate on teaching about the environment neglecting some social and economic aspects that contribute to environmental degradation. Equally, there would be less emphasis on attitudinal changes towards the environment. This came out

clearly during the classroom lesson observations in the research sites where respondents selected Science or Environmental Science topics for lesson observations and in their teaching there was less emphasis on behavioral and attitudinal aspects. For some of these respondents, the introduction of environmental education into the education system has brought no changes to their teaching. Perceptions about environmental education reflected teachers' experiences in teaching either Environmental Science or environmental topics in their history of teaching.

10.4.6 Respondents' involvement in environmental education activities

In view of their understanding of what environmental education is, the respondents described their various involvements in schools including a range of activities such as teaching and extramural activities. All respondents are required to teach environmental education and the revised curriculum has either infused or integrated it (see chapter 8). That means all the respondents are supposed to be teaching environmental education across the curriculum. Some respondents are involved in environmental education related extracurricular activities such as being members or coordinators of school environmental clubs, environmental committees (education), health committees and some supervise learners during clean-up campaigns.

The respondents revealed that they are involved in a variety of ways and for different purposes. Those in health committees assist pupils with personal hygiene and safety. They also "make sure that the school environment is taken care of through teaching and participating in clean-up campaigns" (QR2). In addition to teaching some respondents supervise and monitor learners' personal and classroom cleanliness. They are involved in environmental clubs as advisors encouraging pupils to take care of their environment. One of the respondents explained that

> My involvement in environmental education focuses on active participation in activities that can reduce environmental problems and issues like pollution, littering, bad disposal of waste, wood depletion and others, not forgetting ways of involving community in the maintenance of the surroundings of the institution. Environmental education teaches about how we should conserve the environment (QR1).

School environmental and wildlife clubs coordinators play a major role in encouraging club members to “take care of the surrounding by cleaning” (FG6.1) and “usually encourage pupils to take care of the environment e.g. by picking up papers and I take part in environmental fairs and rallies” (FG5.5). Some respondents participate by “picking up litter every morning, planting trees and flowers in front of classes, making rockeries” (FG3.2). It is clear from the respondents’ explanations that they implement school environmental management activities as environmental education. This kind of interpretation shapes epistemological and pedagogical discourses in schools. One of the respondents who is involved in an environmental club said

> I am an individual member of AECB, school environmental club Coordinator, vice Secretary of Tswapong Cluster. I teach Environmental Science as a subject and at my ward we have a Health Committee that deals with the environmental issues. I am helping the pupils to know how to take care of their environment so that they become a future generation of environmentally literate and responsible citizens. I participate in the cleaning up campaigns at home, in the *kgotla* [a public meeting place] and at school. I am always involved in national tree planting day [which] is a land reclamation day. (QR4)

Some of the respondents have overall responsibility for environmental education in their schools and see to it that it is taught in every standard. One of the respondents who carries this responsibility said “I [develop] action plans to show different tasks to be carried by each teacher in the school” (FG4.1). Another respondent with the same responsibility explained that “I encourage other teachers to supervise learners and enable them to realize the importance of conserving water, soil and avoiding littering” (FG3.1). It emerged that the respondents are involved in many activities related to environmental education outside the classroom. Most of the activities are related to curriculum areas they teach in the classroom such as Science and Environmental Science. However, respondents revealed that they are confronted with some implementation problems in schools. Data indicates that the respondents are more involved in environmental management in schools which they normalize as environmental education activities.

10.4.7 Issues confronting respondents in the classroom

I interviewed research respondents about issues confronting them in the classroom and/or school context related to environmental education policy implementation. The respondents mentioned a number of constraints facing them in the implementation of environmental education in schools. Among the primary constraints were lack of teaching and learning resources and transport (see table 10.6).

Table 10.6 Issues confronting respondents

Lack of transport	Lack of trained personnel for environmental education issues
Lack of relevant books	Killing of small animals
Shortage of pupils workbooks	Waste disposal
Unclear objectives or complex language	Negative attitude towards teaching environmental education by fellow teachers
Cleaning the classroom and the surroundings	
Lack of funds	

The respondents explained the constraints in a variety of ways but all implied that their teaching is affected by such constraints. They explained that lack of transport affects their teaching in the sense that they cannot take learners on educational tours to observation sites, to environmental centres and to throw rubbish away. The other constraint mentioned was lack or shortage of materials leading to lack of or limited information. The emphasis was on shortage of resources, particularly reference books and text-books. They were also concerned about shortage of learners' workbooks. Other teaching and learning resources that hinder the delivery of environmental education policy implementation mentioned were audio-visual aids, shortage of equipment and lack of facilities to use such as gloves and waste bins.

One respondent identified "lack of trained personnel for environmental issues" (QR7) as an impediment in schools and environmental education delivery. A second respondent identified "lack of skills and knowledge" (QR3). Another respondent identified negative attitudes towards teaching of environmental education by fellow teachers. Although these responses were identified in the questionnaire responses, the same issues were not evident during focus group discussions and classroom observations. One respondent who is also responsible for environmental education in the school identified "cleaning the classroom and its surroundings" (QR6) as a constraint as employed personnel should do

these jobs. Other constraints identified in the questionnaires included shortage of water, littering and wastage disposal problems faced by some schools.

It also emerged that another concern was associated with learners' attitudes. A respondent observed that "It seems as if the learners are not doing much about the environment even though they are taught about it. Boys kill lizards and other living creatures" (QR4). The respondent explained that learners are taught about how to be "environmentally friendly e.g. litter picking, not killing small animals, conserving plants and not killing other living things such as insects, as well as to conserve our surroundings and not cut the trees as they preserve the soil" (QR4). The assumption of the respondents is that learners should be displaying changed behaviour as a result of their environmental education teaching. Lack of change in behaviour could be attributed to a number of reasons. For instance, lack of deployment of critical pedagogy to provide for an explicit connection between subject(s) and the environmental assumptions/changes such as the decline in bird population and amphibians that students might study. The respondents reflected a rationalist logic concerning learners' behaviour (see chapters 8 and 11).

I observed teachers taking pupils outdoors into the school grounds during Science and Environmental Science lessons to give learners direct experience (see appendices 5.11 A and B). One respondent complained about time allocated for teaching environmental education. The respondent gave an example of Environmental Science for lower primary explaining that it has only been allocated a few periods in the weekly timetable. This means there is limited time for hands-on activities. The activities that I observed were mainly hands-on. Often the outdoor activities had to be cut short as lessons changed. In response to questions relating to their outdoor teaching, the respondents complained about lack of transport to take learners to areas of interest beyond the school grounds. This implies that learners are not adequately exposed to direct experiences but instead receive lectures in class potentially leading to weaker correlations between attitudes and behaviour (Kollmus & Agyeman, 2002). However, attitude-behavior relationships are more complex than predicted by the participants in this research. Behaviour change is a complex process as it is also shaped by social life. It involves a sophisticated social

process shaping environmental behaviour. O'Donoghue and Lotz-Sisitka (2002) commented that complex and additional analysis, which for example need to take account of culture and *habitus* would be required to formulate attitude-behaviour models as a significant degree of uncertainty still exists in predictions of environmental behaviour.

The other problem emerged from the focus group discussions associated with environmental education implementation was that some objectives are not clear and need to be revisited. The respondents also revealed that primary school teachers are often left out in the design of primary education syllabi (FG1.1). The respondents felt some objectives are not clear because they were designed by subject experts with no representation of practitioners from the classroom in the design of syllabi. One of the respondents said "They have to invite primary school teachers to subject task forces in the design of the syllabus so that they can have an input as sometimes the language is difficult for our children. For instance sometime the language is so difficult even for senior students like Standard 7 pupils" (FG5.4). This issue presents a direct challenge to a technicist/expert curriculum design approach where there is little representation of classroom teachers with rich experiential knowledge of how learners learn new concepts.

During lesson observations a number of topics from Science and Environmental Science were taught to both lower and upper primary school classes. One of the topics discussed was the food chain to illustrate interdependent relationships and activities. The respondents were sticking to the prescribed mode of delivery and predetermined episteme structured within a technocratically designed syllabus (see chapter 8). The classroom discourse I observed did not promote intergenerational or eco-justice perspectives on the viability of natural systems and their use (see chapter 2). This scientific and technocratic orientation could be linked to lack of training, support, and teaching and learning resources as these were identified by teachers as constraints to the teaching of environmental education schools. It could also be associated with the construction of the syllabi (as discussed in chapter 8). The lessons observed promoted material, mental and verbal processes as learners were engaged in practical activities, drawing, making

suggestions and attempting to answer questions orally. These correlated with the syllabus objectives (see chapter 8 and appendices 5.11A and B).

Another problem mentioned by respondents as a constraint was lack of funds to finish projects. This problem was raised by one focus group although in some groups lack of funding was associated with prohibiting outdoor education/trips. The implication was that where direct exposure is necessary teachers are constrained by lack of financial resources to take learners to areas of educational interest. Most of the above-mentioned constraints are structural factors affecting the wider education system and education policy implementation. However, there are also contextual factors within the schools that affect teaching in the classroom (discussed in section B below). Teachers perceive them as contextual as some of them are experienced on a daily basis and affect lesson planning and classroom activities.

Section B

10.5. School and community profiles

This section of the chapter focuses on the discursive and non-discursive practices in schools. It analysis the status of environmental education in schools, availability of resources, support services, socio-economic context of the schools, environmental issues, school-community relationships, and teachers' understanding of environmental education and their experiences.

10.5.1 Current status of environmental education in schools

I asked the research respondents about the status of environmental education in their schools to establish whether it was recognized and appreciated by both the teachers and management. The responses revealed a discourse of cleanliness and environmental management in schools (see section 10.4.8 as well). The status of environmental education is understood in terms of its recognition with activities such as keeping the school clean and the existence of an environment club or committee. Fourteen respondents mentioned school *cleaning or cleanliness* as one of the activities showing that environmental education is given some status in the school. One respondent felt that environmental education is "recognized because there is a health club which operates the

cleaning of the school" (FG4.2). It was also explained that ''environmental education is highly recognized in the school e.g. there is an environmental club" (QR11). Another respondent explained that "The current status of environmental education in our school shows good progress as there is infusion of environmental education even in lessons. It is active because we have an environmental educational club" (QR10). The respondents illustrated the recognition given to environmental education in their schools by giving examples of activities such as projects to develop the surroundings and ''a committee which monitors environmental education and workshops are conducted" (QR2).

The status of environmental education is also measured by schedules of cleaning and litter collection activities. These activities were common across all the research sites and are allocated a particular day during the week, usually Wednesday afternoons. They include everyday sweeping, litter collection and switching off the lights in the classrooms. Some of the activities in schools include planting and watering of trees and flowers, collecting things like cardboard containers and other waste materials for recycling. These activities are primarily environmental management orientated and have little to do with the environmental education requirements in the formal curriculum. Teachers supervise learners to carry out the environmental management activities relating them to classroom learning processes or syllabus content. They are part of the school's official duties and its broader or 'hidden' curriculum. One respondent explained that environmental education has been given the status it deserves as they "have a recognized environmental action plan and school mission statement" (FG4.1). Another respondent explained that "environmental education is highly promoted by the School Management Team" (FG3.4). The respondent also mentioned setting aside time for cleaning the surroundings as one of the activities indicating support from the School Management Team. This shows that some school management teams support the environmental management related activities by using their power and discretion to set aside time for these environment-related activities. The research respondents acknowledged that all teachers are teaching environmental education. In some schools parents are also involved in environmental committees. In some research sites the community had been identified as causing environmental problems around the schools (see section 10.5.6 and 10.6.8).

Resulting from this environmental management work, there appears to be an increased level of environmental awareness among learners and educators. One respondent said "some learners have shown improvement because they pick [up] litter and water the plants and flowers grown in the school every morning" (FG7.3). Another respondent explained that "Pupils and teachers are familiar with how they should relate with the environment [in a friendly manner]" (QR9).

However, there were those who felt that environmental education was not given the status it deserves. It is "still given low status" (QR5). The respondents felt that although environmental education is recognized there are problems such as lack of teaching resources and that most teachers fail to infuse environmental education into subjects. One respondent explained that

> There are several problems including materials to be used by teachers and pupils' books. The syllabus was introduced without material e.g. two teachers share one copy of pupils' books. There is no direct learning for pupils as they still rely on the teacher for information. (QR10)

The recurrence of environmental management discourse dominating in schools may be a result of environmental education only being represented in policy texts and not in 'normal' school materials (e.g. textbooks). It is also an indication of how the respondents interpret environmental education and this situation has impacted on epistemological and pedagogical discourses as the respondents had deployed some normalization strategies to continue exercising their disciplinary power through teaching of Environmental Science and school cleaning activities.

10.5.2 Resources in schools and their availability

The research respondents mentioned a number of resources that are available in their schools that could be used for environmental education. Some of their responses are listed in table 10.7 below.

Table 10.7 Teaching and learning resources available in schools

Garden	Waste pit
Trees	Weather station
Soil	Pamphlets
Water	Posters
Reference books	Animals e.g. birds
Teachers' guide	Charts
Pupils workbooks	Paper and pens
Garden tools	Reserved nature gardens for teaching.
School grounds	

In addition, vegetables and flowers, library and school environmental policy packages were mentioned. Some of the respondents qualified the existence of some of these resources by indicating that there are very few. However, some felt that the resources were inadequate and others felt that they were not available at all. In some schools the respondents felt that "definitely not even a few, it's up to the teacher to find resources or improvise or arrange excursions but lack of transport is always a barrier because of the strict government regulations" (QR3). Transport arrangements in primary schools are made through the district office and vehicles are limited to taking learners on short distance excursions. Even for distant excursions vehicles are booked some months in advance with no guarantee that they would be successful as there are many schools in each district and region. Therefore the schools normally have to rely on private hired transport through parents' contributions, which is problematic for poor parents.

Access to environmental education resource material outside school

Access to environmental education resource material outside schools was reported as being limited in most regions particularly in rural schools. The research respondents listed a few resources, with the library being cited regularly (see table 10.8). Public libraries are only found in major villages and towns. Most of the primary schools do not have libraries. However, those located near secondary schools enjoy limited access to secondary school libraries. Such limited access is always granted to teachers only as the libraries are usually small and cannot accommodate large numbers of readers. Even where access is granted, respondents still found that secondary school library books do not cater adequately for primary school levels.

Table 10.8 Environmental education resources outside school

Library	Natural features e.g. stream and plants
Television	Landfill
Radio	Videos
Education centre	Trucks from District Council
Guest speakers	Wildlife park

Schools near the government education centres have unlimited access to the centres' library books but access is limited to teachers only because these centres are often small and are designed to assist teachers only. The education centres' libraries are equipped with television sets, computers, reference books and video cassettes. Some schools have established relations with the Department of Wildlife and National Parks (DWNP) and one respondent explained that "Teachers are free to contact Department of Wildlife and National Parks officers to ask for any materials they need for environmental education" (QR1). The Department of Wildlife and National Parks materials include posters, magazines, newsletters and videos for hire.

Some of the resources used are radio and television sets, which most of the children cannot do not have. Some are physical such as streams, rivers, landfills, plants and animals. Although the majority of the respondents felt that there are resources available outside the school that could be accessed, some felt they do not have sufficient or adequate access to resources outside the school. They cited transport as the main problem (see section 10.4 and 10.6.6). They felt that provision of teaching material resources such as reference books, televisions and videos should be considered so that pupils can see what they are being taught about. Some felt that the School Environmental Policy (SEP) pack, a particular teaching resource, "should be explained rather than just be thrown to schools. There should be workshops on School Environmental Policy" (FG4.2). There was an appreciation of the School Environmental Policy pack as a resource for environmental education. To demonstrate appreciation of the School Environmental Policy pack one of the respondents who had used it said "Since I understand it now, I find it to be helpful because it guides us on how to implement environmental education at school level" (FG4.3). The School Environmental Policy pack could be the resource influencing the environmental management discourse as it emphasizes school environmental performance in resource use.

School links to or use of environmental education centres

Twelve respondents said there is no linkage between their schools and education centres. Most of these respondents are from rural schools far from the education centres. However, some respondents reported that their schools have links with outside organizations and centres. They acknowledged that some departments honour invitations when invited e.g. Department of Wildlife and National Parks and Department of Forestry that provide trees. The Department of Wildlife and National Parks "liaise with school environmental clubs and assist teachers to expose learners to environmental issues e.g. pupils compete through a quiz, debates and have environmental trips" (QR5). The Department also provides resource persons to schools to brief pupils on wildlife management. It organizes and invites teachers to annual workshops. One respondent said the Department "sponsors our learners in rallies, they transport them and feed them" (QR7). Some schools visit education centres such as the one at Khama Rhino Sanctuary for educational purposes. They also invite coordinators from education centres when they present school-based workshops. "Some teachers go for environmental education workshops at the Education Centre" (QR12).

10.5.3 Support for curriculum changes in the school

There were varying views from the respondents about school management support of the curriculum changes regarding environmental education. There were those who felt that school management is not supportive at all. One of the respondents said "we are never given any new information or workshopped. The school also looks dull as compared to other schools. The environment is not conducive at all" (QR1). Another respondent added that "management has no time for environmental education. They support vocally but when it comes to putting what they said into practice they fail" (FG4.2). However, some respondents explained that the school management is constrained by lack of funds to demonstrate its full support. For instance, the school cannot purchase equipment or finance educational tours because of lack of funds. One respondent said "sometimes it is only that they also face some financial problems when we have to go out of the school" (FG2.4) on educational tours such as a visit to the library.

School management support given to teachers included granting permission for educational tours, to attend workshops and moral support offered by Parent Teachers Associations. School Management Teams (SMT), Parent Teachers Associations (PTA) and Village Development Committees (VDC) often assist in organizing outdoor learning for learners. For instance one respondent said "the principal is very supportive because she is the one who phones and organizes transport. I am saying this because we are taking a trip and we are working hand-in-hand with the parents and the school head" (FG5.2). The PTA is also supportive as it is through this structure that "parents release their children to go for clean up campaigns on week-ends" (*ibid*). The other support from the PTA included the construction of a rubbish pit, buying trees to be planted in the school and planning to build a water pond in the school garden to conserve water. It emerged from the focus group discussions that support varied from one school to another. One respondent said

> The Heads of Departments are supportive because they teach Environmental Science in their classes. Teacher Advisors are supportive as well, they assess pupils' work and run workshops where there is a problem and advise teachers on how to teach some objectives. The Principal encourages teachers to teach all the objectives and pupils are tested at the end of the term where the principal has to analyze each subject. (FG1.3)

In addition, school management was credited by some of the respondents for setting up committees and allocating teachers to duties related to the environment. One respondent said "they encourage all environmental activities that are proposed and they are also members of the Environmental Education Committee. Some environmental days are observed" (QR3). Another respondent said

> The school governing body and the head teacher encourages teachers and pupils to pick [up] paper every morning and after school. Dust-bins are around school premises. [The] school management team encourages ancillary staff to clear the grounds. When we have [an] environmental education fair they give us chance to prepare ourselves for the fair, they even reinforce what we are doing by praising learners for the work done. When learners go for a rally the head-teacher helps in writing to Education Officers asking for permission. (QR14)

Other examples of school governing body support included supporting the environmental education club in school and organizing the school-based workshops to equip teachers with the necessary skills. The support mentioned by the respondents indicates that environmental management discourse is dominating in what they interpret as environmental education activities. The complaints about lack of support from school management illuminates how power functions within the school administrative structures. A further demonstration of power relations in schools are the views of those who feel affirmed by school management support who assist in arranging educational activities such as trips. They show approval of management taking an active role in enhancing environmental education related activities, showing a difference to leadership and management contributions to policy implementation.

10.5.4 The socio-economic context of the schools

The respondents provided insights into learners' backgrounds and the socio-economic status of the school. They also deliberated on means of economic relief or activities that are meant to contribute to the economy of the school. They revealed that schools are dependent on contributions from parents and fundraising activities. Some parents are unable to make financial contributions to the school due to poverty. Some respondents view this as lack of cooperation from parents. However, others acknowledge that many parents are not working in the formal economy, and are therefore not always able to make contributions whenever the school needs funds. Parents are either farmers or unemployed, which leaves them without sources of monetary income. One respondent from an low income urban area explained that "the school is located in a low income community, there are also many orphans who need assistance and most parents sometimes are reluctant to be fully involved in school activities e.g. clubs etc." (FG5.4)

Some schools are making an attempt to improve their economic status and promote learning by raising funds and asking for donations. For instance, at Lerala Primary School, parents and teachers have formed a fundraising committee that raises funds for the school. The school has also been donated two computers from local companies. One respondent from Mogapinyana Primary School said "We are trying to live by our means,

we try what we can to solicit funds from people around" (FG4.3). Another respondent from the same school added that at the school "we make sure that the classrooms environment is conducive for learning"(FG4.4). The schools experience shortages of resources as the council takes time to supply the resources. It emerged that lack of income was a problem faced by most schools, which leads to lack of transport for taking pupils on fieldtrips. The transport problem is even mentioned by schools in urban centres and regional head offices. It appears to be universal in primary schools. An attempt by teachers and Parents Teachers Associations to engage in activities that contribute to learning is an indication of their commitment to education by exercising their disciplinary power and giving moral consideration to the welfare of the learners in schools instead of depending on government support only.

10.5.5 Environmental issues in or near the schools

I asked the respondents about environmental problems experienced within their schools or near schools to establish if the respondents could identify environmental issues. The respondents identified a number of environmental problems in or near their schools (see table 10.9 below).

Table 10.9 Environmental issues in or near the schools

Litter from nearby bars, shops and community Pollution from burning waste e.g. tyres Inadequate toilet facilities Noise pollution	Domestic animals destroying garden veggies Dumpsite far from the school and village (lack of transport to dumpsite)

The most common environmental problem cited was poor solid waste management. The respondents (FG3) mentioned that there is often litter around the school fence caused by poor waste management. Some complained about litter and pollution from the bars near the schools. One respondent said "The school is surrounded by bars and shops where most of litter comes from" (FG3.3). The concern was that people living next to the school dump waste near the school fence because the rubbish pit for the village is far away. Other environmental problems mentioned by the respondents included polluted and stagnant water in the stream near the school, water shortages, chickens from the village destroying vegetables and rockeries and leaking toilets. One of the focus groups (FG2)

complained that the District Council took too long to repair the toilets and this makes the school look dirty.

Some respondents from a suburban school (FG3) identified a shortage of toilet facilities leading to overuse and recurring "blockage" as one of the issues facing their school. They further identified air pollution from burning tyres, particularly when children are at assembly for morning prayers. The respondents also felt that there is lack of conservation of resources as broken public water taps go unattended for weeks. They also explained "re-use or recycling of water is not yet introduced" (FG3.2). Articulation of the environmental issues facing schools may explain the respondents' willingness and wishes to see change at their schools but they are constrained by a lack of resources to exercise their reflexive power.

10.5.6 Community and school relationships

School and community relationships were described in various ways. Some respondents felt they were good while in other schools respondents felt that the community was not cooperative. In one school an interviewee acknowledged that the "relationship had not been initiated particularly in relation to environmental issues responses" (FG2.1). Some of the respondents reported good working relations with the community in response to school environmental problems. For instance, one respondent explained that every term "we do a clean up campaign. The parents come to school on Tuesdays to do the weeding of school grounds" (QR4). Community volunteers also do activities in the school when children cannot, like cooking for children, "particularly during sports and music competitions. In addition to weeding and cooking, parents contributed money to buy wood to stop pupils from bringing wood for cooking" (QR5).

Some schools also contribute to the communities by picking up litter outside the school fence and participating during national clean-up campaigns. In one school parents contributed money to buy bricks for building a water tank for watering trees and vegetables in the school garden (FG4, a rural school). One respondent explained that "parents are always willing to assist if requested" (QR4). The respondent described the

relation as “good because when asked to do something they do, e.g. they built a traditional hut near the main gate” (QR4). In some schools, parents are blamed for not attending meetings when invited or for “not wanting to be involved in the cleaning of the school environment” (FG4.1).

10.6 Respondents’ deeper perceptions, interpretation and views about policy

This section examines respondents’ interpretation and understandings of environmental education and education policy in practice. The questions asked were meant to establish what influences the respondents’ exercise of power and governmentality (self-governance strategies). Data for this section has been generated mainly through focus group interviews, supplemented by school and classroom observations. It provides an in-depth content analysis of the interviews with respondents, their understandings, professional experiences, competencies and the perceived value of the policy to the children and the community.

10.6.1 Respondents’ perception of the RNPE and environmental education

It emerged from the interviews that most respondents knew about the existence of RNPE. They indicated that they learnt about the policy and environmental education from many sources such as the media, colleagues, lecturers and by reading official correspondence and documents. From their responses it is evident that they feel the introduction of the policy and environmental education was not organized in formal forums to ensure that all respondents were aware of the policy, and its implications for their teaching in the classroom. Although the information about the policy was not effectively communicated to teachers, the avenues used to publicise the policy were abundant. Those who were still training at colleges of education were informed by their lecturers. They learnt that they would be required to teach environmental education as an infused phenomenon. Some of the sources included the commission’s report, correspondence from the Ministry of Education and educational magazines. One respondent said “I remember others were consulted from other areas” (FG4.1). There were also those who had no idea about how they had learnt about the policy and environmental education. For instance one respondent declared that “I do not remember exactly how, but it was something talked about in school and often appeared in newspapers” (FG2.4). This broad publicity of the

RNPE and environmental education may have created a space for some of the respondents to feel that they were not directly informed or consulted in the introduction of environmental education. This may have influenced their reaction to the teaching of environmental education.

10.6.2 Teachers' first encounters and approach to policy introduction

It emerged from the interviews that when respondents first learnt about environmental education they had mixed feelings as some did not know what it entailed. Those who were still training in 1994 were fortunate, as lecturers clarified that environmental education would be infused into all subjects indicating the important influence of teacher education in building confidence with new policy concepts. However, it seems that the majority related environmental education to Science as its contents were perceived to be similar to Science contents. Some of the respondents who were already teaching did not know what environmental education was really, "whether it was about plants or animals" (FG1.5), "about health or our surroundings or things around us that can affect our lives" (FG1.3). However, some respondents had no fears, although they confused it with Science, and appeared confident with this construction of environmental education.

Some respondents were happy with the introduction of environmental education and had their own understanding of what it is and what it entails. Some had some reservations and felt they did not understand it. One respondent said "we were happy that children will be taught about the environment while still at school as they are likely to care about the environment" (FG2.2), and another said "I was happy because we were doing it in different way but we were not aware. I was happy that we are going to learn more, we are going to take care of the environment" (FG3.3). The respondents expressed different first impressions about environmental education, some claiming it had "always been there although it was within other subjects" and that it was about teaching children about conservation and to be responsible. Some respondents were comfortable because environmental education has been integrated into other subjects, so they did not have problems with it (FG6.3). This data suggests an accordance between teachers' pastoral

role which includes value-based educational orientations and the value orientations embedded in environmental education, perceived as care for surroundings.

Respondents also reacted by individualizing their understanding and experiences. One of the respondents explained that “as an individual I did not have any problem with it” (FG6.4). Another respondent said “well I did not have any problem with it except that it deals with things that need to be shown so we lack teaching material, otherwise it is not a difficult area” (FG6.1). While another commented that “I found it to be simple, because when you talk about environment you are talking about the surroundings. So it was nothing new as even when we were still at primary school we use to collect cans and make something out of it, that is recycling” (FG6.5). The respondents felt that they did not have any problem because it dealt with things that they already knew (FG6.2) and that there was nothing to excite them as they related it to be Science. This combination of favouring local interpretations of environment (also reflected in teachers’ views on environmental issues) and the conflation with Science, appears to have led to a sense of familiarity with the new environmental education policy, or a recontextualisation of the policy in ways that situate with existing experience and knowledge.

It became clear through the interviews that some respondents thought environmental education would be an added task, but later on realized that as an infused phenomenon it was not going to be an extra burden. Some realized this when they started teaching it. These perceptions and realizations were common with most of the respondents across the study sites. What was common was that the respondents initially thought they might have an increased teaching load. Some respondents were sceptical about it as one of them explained that “with innovation you never know how it is going to be like in practice, but as times went on I learnt that it was not that difficult” (FG4.1). As for what environmental education entails, the respondents provided various interpretations. Their interpretation was that environment entails teaching about everything in the environment including animals and plants, therefore they had no problem with it. Although their understanding of what is involved in environmental education could be interpreted as encompassing many things, it is skewed towards the bio-physical understanding of the

environment. The respondents normalized environmental education by claiming that they are familiar with its contents, and by affirming its 'infused' nature which reduced concern for an increased workload.

There were mixed reactions from the interviewees about their competencies. Some respondents explained that they had doubts about their competencies for teaching environmental education as there were no materials and they did not have an idea about the infusion approach**.** One of the respondents explained that although they are teaching it they are not sure whether they are infusing or integrating as they are simply basing their teaching on the set objectives in the syllabus (FG5.5). Another respondent said

> Since we are following the objectives I do not know where we are integrating or not. We do not see the difference between the environmental science and science. The contents are almost the same with the previous science. The only little difference is that there are health and agriculture contents added. (FG5.1)

Some respondents felt comfortable with teaching environmental education as they constructed it as Science that they were already teaching, and they had few doubts about their competencies. One of the respondents explained that "I started teaching in 1994. At first I thought it was for people interested in wildlife as it talked of animals and plants. But later on I realized it has to do with science topics in the syllabus, so I had no problem with it because I read science" (FG4.3).

However, another respondent said "when I started I had problems but as times goes on I got used to it and felt confident"(FG7.2). Another respondent reflected fear as articulated in this statement "the first time I started teaching it I was a little bit scared because I was not sure how I was going to teach it, where I was going to get the resources, and how to infuse it, because it was said we have to infuse it within the other subjects" (FG6.1). The respondents' views and experiences are varied but generally constructed environmental education as Science and in this context either doubted or claimed confidence about their competencies. Data also suggests that teachers exercised their reflexive powers in engaging with a policy and associated teaching innovation such as environmental education, through the process of constructing environmental education as Science and through associated expressions of confidence, or lack thereof.

10.6.3 Respondents' views on the introduction of environmental education in schools

Data reveals that when environmental education was first introduced in schools some respondents had the opportunity to be provided with training. This training was an orientation to the new or revised curriculum for primary schools. The training workshops were not specifically for environmental education or Environmental Science but focused on different revised syllabi including Environmental Science (FG6.4). The training did not cover infusion of environmental education. However, one interviewee (FG2.3) said "It was normal, though some were trained and others not". The workshop took the whole week (FG6.4) and "focused on how to plan. We worked on the objectives of the syllabus" (FG7.4).

It became very clear from the interviews that some respondents regarded Environmental Science as environmental education. The training workshops that were organized for the revised syllabi including Environmental Science were treated as in-service training for environmental education, while there were actually introducing teachers to the revised syllabi as per the 1994 RNPE. However, some of the respondents felt that the workshop did not include infusion or integration of environmental education. The problems the respondents experienced when they started teaching environmental education were lack of teaching and learning resources. The respondents complained about this in all the research sites. It emerged that it was not only difficult to get the information to teach it, but it was also difficult to get reading material for children**.**

However, one of the interviewees, who graduated after 1994, did not see the need for orientation as he was confident about his understanding of environmental education and his competencies. The respondent explained that "Well I was not teaching when it started. But I feel there was no need to go to a workshop as environment is there in every subject. Environmental Science is there in other subjects, for instance topics are already in other subjects" (FG5.5). This was expressed with high confidence indicating that the respondent felt he had competencies to teach environmental education. This implied that even if he was in the teaching field when environmental education was introduced he would have not found it important to attend a training workshop as environment is

already integrated into the subjects. The respondent's explanation does not indicate that he understood environmental education differently from those who misinterpret it as Environmental Science. What is emerging from the above excerpt is that the respondent does not differ from those who had never been exposed to environmental education in their training. It is an indication that there may be a need to re-orient environmental education in teacher education programmes to avoid creating a space for teachers to deploy some form of power to normalize environmental education as a familiar area of study while they possess limited knowledge about it.

10.6.4 Teacher's views about the value of environmental education

I also interviewed the respondents about what was particularly helpful about the teaching of environmental education (i.e. the value of environmental education). The research respondents saw value in the introduction of environmental education in schools. They felt that environmental education "is good because it gives children lifelong skills that they do not use only at school but also outside in their daily life" (FG7.4 and FG7.2). One respondent (FG2.2) emphasized the importance of environmental education and said "we feel it will improve the environment as children are enjoying and understanding it".

The respondents explained that environmental education also changes learners' attitudes towards themselves and the environment. It helps learners to develop positive attitudes towards the environment among the learners because it is practical. The interviewees appreciated that the teaching of environmental education helps conserve the environment as children are beginning to take care of their environment (FG2.3 and FG4.3). One of the respondents explained that "normally you find after talking about a particular topic pupils would try to practise what they learnt in the classroom" (FG6.2). This was supported by another respondent who explained that "normally pupils are taught about how to take care of themselves and their surroundings, so they now do that without anybody asking them to do that" (FG6.3). Another respondent explained that

> It was helpful, even today if you go to standard one and ask them how they take care of their environment they tell you, they know. They enjoy it because when you teach Science they will find it there, you teach Social Studies they will find it

> there. It's good to have it in the curriculum. Sometimes children even ask when you are teaching science, 'is it Environmental Science'? The objectives are related and some are similar. (FG3.3)

The above data demonstrates that the respondent not only values environmental education but also that she constructs it as Environmental Science or Science. The respondents also felt that environmental education addresses some of the areas that are not addressed by other subjects particularly in skills development, as it is practical (FG4.4). They explained that it improves children's attitudes towards the environment and provides them with practical skills to take care of the environment and of themselves (FG5.2 and FG1.3). They gave several examples to illustrate the value of environmental education such as "it is sensitizing learners about their environment, water conservation and safety"(FG7.4) and "Now children can see what we are teaching about within the environment as we talk about what they know and can see" (FG7.3).

10.6.5 Teachers' experience with environmental education policy implementation

Research respondents expressed frustration in relation to the implementation of the policy. The most common cause of frustration mentioned in all focus group discussions was lack of teaching and learning resources particularly the reading resources for learners (as indicated in section A above). Some of the respondents felt that the limited reading resources they have are either shallow or the language is too complex for the level of pupils. The most commonly available resource mentioned was the outdoor classroom, the school grounds (see 10.5.2). However some felt that they needed to go beyond the school grounds but are restrained by a lack of transport. This situation implies that teachers may be influenced by lack of resources and deploy normalizing strategies in their epistemological and pedagogical practices to cope with the situation by applying the familiar knowledge as environmental education.

Lack of teaching and learning resources

Lack of teaching and learning resources seems to be the most common factor disadvantaging the teaching of environmental education in schools. One of the respondents (FG7.1) commented that "we use a lot of imagining than showing them the

real things. Some of the available books are too shallow. Some require teachers to research but there are no books. We also have a problem of shallow recommended books" (FG4.3). All respondents agreed on this, stressing that they recommend books that they found to be good but when the Ministry of Education sent them a list of recommended books, they found that the books that were recommended were too "shallow". This form of control and power relations over recommended books by the Ministry of Education features across the research sites. Moreover, respondents explained that because of a serious shortage of pupils' workbooks and other resources they "just lecture because there are no resources and we cannot expose children to what we talk about in class. Sometimes we cannot get relevant information to achieve the objectives as stated in the syllabus" (FG4.3). It was also evident that respondents lack teachers' guides in addition to relevant books to teach environmental education. In some cases there were not enough resources for big classes. For instance in one school a research respondent revealed that "some of the resources are not enough for our big classes of 35 learners with only one workbook available" (FG1.4). This situation further implies that, although the respondents may be valuing environmental education, they are constrained by lack or shortage of learning resources to participate fully in the reproduction of knowledge associated with the implementation of environmental education.

It was revealed during the interviews that teachers talk about things that cannot be seen, "because we cannot take learners to some of the places, even to waste dumps outside the village" (FG2.4). One respondent explained that environmental education is "supposed to be hands-on but we have a problem of making it practical so we end up lecturing" (FG5.5). Another respondent explained that "the problem is that we have no resources, so we do not teach effectively and children do not understand the abstract concepts we teach and it is frustrating. We have problems like lack of transport" (FG2.1). Despite an interest in environmental education for its practical value and local relevance, teachers therefore seem not to be adopting practical approaches beyond the school-based environmental management activities such as cleaning up classrooms and the surroundings. This implies that teachers exercise their reflexive power in assessing their experiences (see section 11.2). In other words, teachers may feel obliged to teach environmental education despite

contextual constraints and hence do something related the environment (e.g. environmental management).

Difficult language and terminology

Some interviewees felt that the language used in the syllabus and in the textbooks created a problem for teachers and learners. The respondents revealed that the syllabi are written in English even for Standard One pupils and it is not easy to translate some of the terminology and concepts. Some of the terminology used is perceived to be above the level of the learners. One interviewee reported that "You sometimes never know whether you are progressing or confusing the children more" (G4.2) and another explained that "Now as the teacher you have a problem of interpretation, you are not sure whether the translation and interpretation is exactly as in the syllabus" (FG4.4) (see section 10.3.4). These uncertainties of some of the respondents indicate that they still lack confidence in teaching environmental education. Respondents still find environmental concepts (and terminology) a challenge to their competencies. Their understanding of environmental concepts needs reinforcement to restore their confidence. One of the respondents (FG4.3) wondered how a teacher could teach about something he/she does not understand. "I am not frustrated at the moment but some of the things that are mentioned in the syllabus even teachers are not familiar with e.g. landfill, so how can a teacher impart knowledge that you do not have" (FG3.1). The implication for governmentality here may be that teachers exercise their disciplinary and reflexive power when questioning their own knowledge and competencies, reflecting some ethical values in their profession.

Another respondent feared that they may lose the meaning of some environmental concepts if they try to simplify them for the learners. "It is not easy to simplify the language because we are afraid of losing its meaning. We try to simplify but sometimes you feel like you are losing the exact meaning" (FG4.1) (see section 11.2). Respondents also felt there should be some remedies to some of the problems they are facing such as provision of "guidelines because we need to differentiate material for different levels even where the objectives are the same. We need materials for teaching. We need visual aids" (FG4.4).

The research respondents felt that books should be written in the local language to avoid expecting teachers to do translation, which is risky at times. It would be better if books are written in *Setswana* for lower primary classes since they are taught in that language, rather than expecting teachers to translate **(**FG5.4). Some books have difficult terminology and teachers have to struggle to find more information from other books. Some of the prescribed books are too complex for the levels. They felt that Collegium publications are appropriate for the level of the pupils **(**FG5.3). One of the problems with complex language or concepts is that "it affects pupils' level of understanding hampering progress. Our teaching is almost stagnant because pupils' understanding is low". (FG7.1)

The use of complex language/terminology in the syllabus and books could be attributed to the mode of curriculum design and procedures. The respondents had cited lack of primary school teacher's involvement in the design of the curriculum for primary levels (see sections 10.3.4). The curriculum designers who are reproducing and interpreting the policy objectives take for granted that the concepts they use will be clear to teachers and learners. This technique of marginalization (and silencing) results in a technocratic or expert-led curriculum product, which is reproduced in material designs. This challenges human agency in practice as the agents of transformation (primary teachers in this case) struggle with interpretation of the curriculum statements, objectives and language used in the books to communicate and guide the learners. As a result some respondents are unable to help their students to understand the environmental concepts and how they contribute to degradation of the environment. The forms of knowledge that can be communicated through scientific terminology hide the environmental episteme encoded in the language that appears in the books or curriculum documents.

The difficult language that the respondents complained about defeats the learner-centred, constructivist view of learning that assume that learners "construct their own conceptions of their world" (Bower, 2001: 148) which "fails to take into account the meta-schemata encoded in the language processes that are basis of thought, communication and

behaviour" (*ibid*) and learner-centred objectives as proposed in the syllabi (see chapter 8).

10.6.6 Progress on environmental education implementation in schools

I interviewed research respondents to find out if their views on the policy implementation processes made a difference to their teaching. The purpose of this question was to open up opportunities for any related policy implementation issues that I had not covered in the interview discussions. Focus group respondents felt that their level of understanding of environmental education since the policy was implemented has improved. However, they still need more learner support resources and in-service teacher training. One respondent explained further indicating that even "children are beginning to understand it" (FG3.3). Although most of the respondents explained that they understand environmental education and their teaching had improved, there was a feeling among some respondents that environmental education should be a specialist subject on its own. The reason advanced was that "one would concentrate as one is not involved in other subjects. There is a lot of negligence in infusion" (FG2.1). Another respondent argued that specializing in environmental education would sharpen their teaching competencies (FG2.1).

There was a feeling by some respondents that education officers should come out to schools and see what is happening particularly with regard to new policies (FG7.4). They felt that officers must come and do class observations and talk to teachers instead of just asking teachers how things are rolling out in a rush. Some felt that a regional education officer should be employed specifically for environmental education and Environmental Science for primary schools and "it must be somebody trained in the subject" (FG7.1). One of the respondents felt that "There is no dedication. We are just teaching environmental education because it is there; otherwise it is like nobody's business. School Environmental Policy should be coordinated and implemented instead of just neglecting it" (FG4.3). The respondent gave an example of the National Essay Competition conducted by the National Conservation Strategy (Department of Environmental Affairs). It is not properly supported and coordinated. Another example

was the Regional and National Environmental Education Fairs that had been "stopped and we do not know what is happening to the floating trophies. We used to have children debating and children liked it. There use to be competitions on recycling of material and conservation and we do not know what is happening" (FG7.1). These illustrate that some respondents were interested and enthusiastic about environmental education related activities and what they need is support from the education administrative structures to enhance environmental education policy implementation.

Some respondents felt that environmental education implementation could be further enhanced by improvement of some legislation. For instance the Traffic Act on littering and other laws should be enforced so that children can see the value of what is taught about the environment in broader society. One argued that when "we consider what is happening outside the school, business people should be involved. We teach children but parents do not respect the environment. They litter. What we teach in the classroom should be enforced outside the classroom" (FG7.1). The respondents felt that laws should be "enforced to protect the environment against pollution" (FG7.4) and environmental education "should also be for the parents" (FG7.4).

The issue of the community-school role in children's environmental education and associated values is one site of social circumstances and a site of contestation and struggle. The respondents are worried that the learners accept their experiences at school as appropriate only at school, compromising the value of environmental education in social transformation. Respondents are concerned about the school and its order of discourse and the non-complementary relationship with what is actually practised outside school. This perceived contradiction between school discourse and community attitudes towards the environment is the basis for struggle to extend the teacher-learner position to parent-child position (i.e. local orders of discourse) in respect of environmental education (i.e. to redefine the relationships). They suggested that "Workshops should be mounted for parents to complement what teachers teach to pupils" (FG2.1).

The respondents also mentioned lack of facilities as one of the stumbling blocks in the implementation of environmental education. One of the respondents said “It is important to have laboratories. This would alleviate the lack of space in the classroom where we have a problem of keeping teaching aids we have made” (FG3.2). This view was shared by other respondents in the focus group and one of them explained that “in addition the rooms are too small for us to have miniature structures for demonstration” (FG1.6). Some respondents felt that there is lack of assessment instruments to guide teachers to see if they are achieving the objectives (FG4.1). Another respondent felt that “There should be assessment criteria so that we can be able to judge progress” (FG7.1).

With regard to practical evidence that the respondents are implementing the policy, it became evident through observation that some schools have projects and their vision and mission statements reflected either the environment or environmental education. One of the respondents explained that

> Well here at Mmualefhe we do recycling of papers, we take care of the school grounds, plant trees and some ornamentals. We are trying, we also conserve water. You can see our recycled material we have made dustbins and other teaching aids. (FG2)

Progress on the ground included recycling projects and gardens and school mission and vision that included environmental education and environmental management activities (see Mmualefhe photograph plate 10D).

Observation in different schools revealed that there were a range of projects including rockeries, gardens, planted trees around the school grounds, and waste management projects such as waste sorting and recycling. It emerged during the discussions that schools are experiencing lack of support from the municipalities in waste disposal. The school heads also mentioned the problem of animals from the village destroying flowers and trees around school grounds. This demonstrates the technique of power exercised by teachers in normalizing environmental education by localizing knowledge (see chapter 8) and associating it with the familiar. It was evident in most schools that there are efforts to

promote environmental education through environmental management. School notice boards had vision and mission statements including environmental education. Staff rooms and School Heads' office had environmental posters and recycling projects items made from waste material. For instance, in Mmualefhe Primary School the staffroom was decorated with environmental education projects items made by learners (see plate 10D).

10.7 Summary

This chapter focused on teachers' interpretations and views, experiences, power relations (and governmentality) and implementation of environmental education in response to the 1994 RNPE. The respondents were all teachers from primary schools. The respondents' qualifications were varied ranging from certificates to Bachelors degrees. There was only one unqualified temporary teacher. Most of the respondents teach all subjects in their allocated classes. Some of the respondents queried the support from national, regional and local levels by School Management Teams, subject advisors and the inspectorate. However, administrative and professional support has been credited in some schools. It emerged that there is no education officer responsible for environmental education.

There are limited specific teaching and learning resources to help teachers to teach environmental education which is infused across the curriculum. Teachers rely on their experiences and interpretation of syllabus objectives. They improvise to make their lessons successful employing various teaching techniques. They are confronted with various challenges ranging from limited or inadequate material resources, funding and transport for outdoor learning, lack of or inadequate support from supervisors to colleagues' attitudes, which affects their interpretation of the policy and the exercise of disciplinary powers and strategies. They appear to be positive and recognise the local relevance and value of environmental education but due to contextual challenges they deploy normalizing strategies that emphasise environmental management activities and treat Environmental Science and Science as environmental education.

The respondents' policy interpretation is influenced by contextual conditions created by the Ministry of Education structure (macro level) and governance. Their policy

understanding influences epistemological and pedagogical practices. The respondents (i.e. policy agents/actors) are not openly opposed to the introduction of the environmental education policy or ready to admit that they do not understand what they are required to do. However, their confusion of Environmental Science and environmental education and complaints about in-service training indicate that there is a need to further clarify the environmental education discourses embedded in the RNPE. It may be equally important to clarify syllabi instructions and support translation of these into meaningful teaching and learning processes (not only environmental management activities and field trips). One could therefore agree with some of the respondents that they need in-service training. An examination of the respondents' and schools' context indicates a mixture of an ideal and a hostile situation in the implementation process making for a complex implementation context and diverse and often ambivalent normalising strategies. The respondents have employed various techniques of resistance and compliance. It was only through careful analysis of their responses that conclusions can be drawn that some were deploying techniques of self-governance and normalization in expressing their experiences, feelings and perceptions about their teaching and competencies. However, most of the respondents found the introduction of the policy valuable to the children and the community, despite logistical and professional problems experienced.

It is also clear from the responses that there are issues of institutionalisation, power relations and governmentality at play in the policy interpretation and implementation. Some of the respondents felt that the introduction of environmental education has brought some attitudinal changes although there are some teachers whose attitude is cause for concern. There are those who feel sceptical about change citing associated problems such as lack of transport for educational tours and learning support material. It became clear from this research that teachers still rely heavily on textbooks instead of other strategies to enable development and application of knowledge. It seems that teachers cannot rely on curriculum guidelines to select appropriate content to achieve the set outcome without detailed and specific or prescribed textbook content, indicating the strong influence of textbooks on governing teaching practices.

Teachers are expecting linear progression of pro-environmental knowledge leading to environmental awareness and concern (environmental attitudes and behaviour change). This rationalist model assumes that educating people about the environment issue would automatically result in more pro-environmental behaviour and has been termed a (information) 'deficit' model of public understanding and action (Kollmus & Agyman, 2002: 3). Another important pedagogical and epistemological observation from the research was that teachers had to deal with normative influences. One respondent mentioned the hunting for small animals by learners (boys) such as lizards (see section 10.4.9). Based on the observation made in a rural school, the pupils' behaviour may be influenced by the unsustainable lifestyles experienced by the learners, widening the gap between attitudes and action negating the pro-environmental behaviour expected by the teachers from an environmental education point of view (Kollmus & Agyeman, 2002). Also community/public behaviour often creates tension with expected pro-environmental behaviours of learners.

It emerged from the study that teachers are confronted with some structural factors that are constraining or enabling. These include hierarchical structures, both in schools and the national education system, insufficient time and lack of transport for outdoor activities, limited learning and teaching resources, large class sizes, complex terminology in the syllabi and textbooks, lack of external support e.g. from local education authorities, and attitudes of some colleagues. These constrain teachers' classroom practices and hence their capacity to achieve policy implementation in practice. However, some of these structural constrains emerged as enabling structural factors. For instance, some respondents mentioned support from the Department of Wildlife and National Parks providing transport and talks to their students, support from School Management Teams, Parents Teacher Associations and School Heads. Despite constraining factors, the respondents placed great value on the introduction of environmental education in the curriculum, particularly with regard to its practical value and ethical concerns.

This chapter has provided insights into the respondents' interpretations of policy texts, their experience and opinions regarding teaching of environmental education, and

provided insights into self-governance and normalizing strategies deployed by teachers in response to the introduction of the RNPE. The next chapter contains a discussion of the results reflecting on major findings and theoretical concepts. It provides a post-structuralist reflection on the interface between genealogy of the RNPE and associated emerging governmentalities.

PART D

SYNTHESIS: THE INTERFACE OF GENEALOGY AND GOVERNMENTALITY

THE INTERFACE OF GENEALOGY AND GOVERNMENTALITY

AN OVERVIEW OF PART D

The previous chapters provided the purpose and historical context of the research, theoretical analysis of environmental education policy discourses, critical analysis of environmental education policy statements and documents as well as the voices and experiences of the policy-makers and policy implementers within a post-structural perspective. Part D takes the post-structural analysis further through a commentary and analysis of the interface between the genealogy of the environmental education discourse in the RNPE and associated emerging governmentalities. The interface is demonstrated by evidence of power/knowledge relations that are central to genealogy and governmentality as perceived by Foucault (see chapter 4). Evidence of power-knowledge relations in environmental education policy discourses are drawn from the previous chapters. Chapter 12, which is the final chapter, provides conclusions and recommendations for environmental education policy in Botswana based on discussions and insights from the data.

CHAPTER 11
THE INTERFACE OF GENEALOGY AND GOVERNMENTALITY

Section A

11.1 GENEALOGY - POWER/KNOWLEDGE RELATIONS IN EE POLICY

11.1.1 Introduction

Chapters 2, 3 and 6 provided insight into the way in which global environmental policy discourses influenced the genesis of environmental education policy in the Botswana context. This genealogy was extended through document analysis, interviews and observation data in chapters 7, 8, and 9. Chapter 4 provided a theoretical framework guiding the research. In this section I provide a synthesis of power/knowledge relations in environmental education policy development processes. The section reflects on global, regional and local influences in policy construction and interpretation. In particular, it reflects on power/knowledge relations historically emerging from international initiatives, regional efforts and key national players in environmental education policy discourses. It draws on and brings together the theoretical framework, document analyses, and interview data. The analysis in this section is shaped by the Foucauldian genealogical approach framed within a post-structural orientation to environmental education policy analysis. The focus of the synthesis is on technologies of power and how they have operated, and continue to operate within environmental education policy discourses in the Botswana context. In providing a post-structuralist analysis of global, regional and local environmental education policy discourses I am trying to enhance an understanding of how, why and where the discourse originates to provide a perspective on how discourses in school contexts have been shaped.

11.1.2 Global context of the genealogy of environmental education policy processes

A review of global environmental policy discourses in this research (see chapter 2) revealed that a growing pressure for global cooperation associated with responses to socio-ecological and development concerns was the driving force among the global environmental institutions such as IUCN, World Wide Fund for Nature and the United Nations and agencies. This has influenced environmental education policy discourses.

New environmental knowledge generated through research and debates to address global socio-ecological processes legitimized the introduction of sustainable development concepts into environmental and education policy discourses. New environmental knowledge discourses and power relations shaped environmental education policy processes in different contexts. The debates associated with education for sustainable development indicate that this discourse is emerging as the dominant discourse to be incorporated into education to address socio-ecological crises. An analysis of the history of the present environmental education policy discourses indicates that UN agencies, such as UNESCO-UNEP (IEEP), and global organizations, such as the IUCN, World Wide Fund for Nature and regional organizations, such as the SADC Regional Environmental Education Programme, are spearheading the engagement with these global discourses. A post-structural approach to this research indicated that these organizations, their institutions and partners are influencing environmental education and education for sustainable development global policy discourses displaying the application of their technologies of power. Shaping environmental education policy discourses and environmental politics in a southern African context, is the phenomenon of donor funding which has the potential to exercise asymmetrical power relations in dealing with participants and regions (such as southern Africa) that possesses less economic power.

Historically, people have sought to come to terms with their environment and establish a harmonious relationship with it (Scoffham, 2000). Socio-ecological relations were challenged by new knowledge pertaining to economic use of resources due to the rise of capitalism and the industrial revolution that are based on a model of development and growth that is not sustainable. This situation triggered concern and a search for forms of knowledge that would promote sustainability in socio-ecological relations. Historically, technology brought advances in environmental problems and knowledge formations, environmental and associated discourse coalitions for global cooperation (Beck, 1999) and international agreements to protect the environment became necessary (see chapters 2 and 6). An analysis of power relations posits that groups of people, NGOs, governments and regional bodies such as the Environmental Education Association of Southern Africa and SADC (SADC-REEP) in southern Africa responded to the global

calls to show concern for the deteriorating state of the environment. Actions and responses were different in each country context in southern Africa (see Obol & Springall Bach, 2003). Environmental policies and strategies in countries around the world have formed part of the global and regional response to environmental crises as governments have attempted to govern unsustainable actions and increased environmental degradation. Education has been seen and used by the majority of the concerned community as an instrument to address concerns and promote care for the environment and ultimately to provide a tool for enhanced governance in response to socio-ecological concerns and unsustainable development patterns (see section 2.2).

International policy influencing events such as the Stockholm Conference (1972) (see section 2.2 and appendix 2.1) greatly influenced policy development and implementation processes in Africa and southern Africa. Most of the earlier environmental education and curriculum policy responses were influenced by UNEP-UNESCO's (IEEP) aims, objectives and principles as laid down at the end of the Tbilisi conference in 1977 (see chapter 2 and 6). These scientifically oriented aims, objectives and principles have continued to shape the debates and ongoing search for definitions of environmental education (see section 2.3). In the last two decades, there has been a move from the early ecological and issue resolution goals of environmental education to sustainable development discourses (see section 2.4). The shift has been precipitated by the complexity of socio-ecological issues and international development inequalities, and further insights have been gained through research and deliberations on the nature, causes and impact of environmental issues. Some of the current concerns shaping the search for a common understanding of environmental education are socio-ecological issues, poverty, development of new ethics, and more adequate political and health-related responses to the HIV/AIDS pandemic in southern Africa in an effort to bring together environment and development and human well-being concerns.

Botswana has responded to the globalizing effects of power exercised through Agenda 21, Chapter 36 and the 2002 World Summit on Sustainable Development initiatives. The 1994, RNPE and the 1997 National Vision 2016 (see chapters 2 and 6) are actions taken

at the macro level to facilitate the introduction of environmental education into the education system. This research has demonstrated that policy implementation progress is dependent upon knowledge-power relations and interpretations by the actors as these have influenced both the genealogy of this policy and associated emerging governmentalities in the country's education system. The technologies of power emanating from global environmental education policy agendas articulated by external agencies and key role players in environmental education policy discourses such as UNESCO, were rearticulated by individuals and NGOs in the national context, and accepted by national government agencies to construct environmental education policy and effect social change. New environmental knowledge and education policy insights articulated by these organizations influenced Botswana as a member of the global community to react to the global environmental discourses and ideology to legitimize its own education policy agenda by incorporating environmental education into the curriculum (see chapter 6). From this research it is not evident that Botswana attempted resisting the environmental globalization process with regard to environmental education. This was a productive effect of power on Botswana, as it is not insulated from the environmental problems transcending national boundaries.

11.1.3 Environmental education policy discourses

A number of factors including the prevailing environmental issues discourses orchestrated by environmental organizations contributed to the shaping of environmental education policy in Botswana. For instance, the 1991 Environmental Education National Planning Conference, the 1992 Earth Summit, and the 1992 Presidential Commission played an important role in influencing the government to accept the introduction of environmental education into the education policy and into the national curriculum. Above all, the role played by the Conservation Education Unit of the Department of Wildlife and National Parks and other non-governmental organisations made great strides in influencing policy processes (see chapter 6).

A post-structural analysis of data shows that internal influence came from both bilateral and international non-governmental organisations such as the USAID, WWF, IUCN, and

the United Nations. Key local role players included non-governmental organisations, and institutions such as the University of Botswana, government organs and individuals (see chapters 2, 6 and 9). The genealogy of environmental education policy in Botswana shows that the government was willing to accept educational innovations including the introduction of environmental education into the curriculum. However, there were no clear guidelines as to how the introduction of environmental education was expected to filter from the macro to micro levels. The agents/actors were left with the option of varied interpretations of the policy statement and approaches in response to structural obligations instituted by the policy. This implies that although the government was ready to accept the introduction of environmental education into the education system it was not prepared to support its implementation.

Data from interviews (see chapter 10) shows that the respondents were from the beginning in 1994 not clear on what new instrumental knowledge such as the 'right attitudes' and 'skills' were to be. The research participants gave multiple interpretations of what they perceived to be the right attitudes and skills. This context shows that policy designers were not familiar with environmental education and its related concepts. It was not clear from the beginning how environmental education was to be integrated or infused into the curriculum. This was evident from the discussion with teachers who were giving equally varied interpretations of what could be the 'right attitudes and skills'. It emerged that the dominant discourses were conservation and protection discourse and constituted by parallel or hybrid versions of sustainability discourse. These discourses were inconsistently used in the syllabi analysed (see chapter 8). This represents a mix of dominant discourses in the 1970s, which shaped the emergence of conservation organisations and that of the 1990s, which was prominent in the global discourses following the two major UN summits in 1992 and 2002. The mix may impact on epistemological and pedagogical discourses in the classroom as teachers follow the instructional objectives and would want to achieve what the syllabi prescribe (see chapter 10).

It was also clear from the data that policy text authors may not control the meaning of their texts particularly when these remain inadequately supported in the education system

by learning support material resources and in-service teacher education (see section 3.5 and chapter 10). Teachers gave varied interpretations of environmental education that recreated the meaning of the policy into environmental management activities in schools, Of particular interest were Science discourse and an interest in the practical value of curriculum (although the latter did not play out in practice) (See Bowe, Ball & Gold, 1996). Teachers exercised their power to recontexualize policy in the context of practice at implementation stage and created their own normalization strategies and approaches to self-governance in relation to their perceptions of the policy requirements. The research revealed that their interpretations were influenced primarily by their prior epistemologies and their experience. Teachers may have been influenced by the history of their experiences, values and struggle to preserve the status quo or to remain in 'safe zones'. In addition, critical discourse analysis of document text has shown that policy text may be both constraining and enabling. For instance, it may be prescriptive and authoritative or non-prescriptive and non-authoritative (see sections 3.8 and 3.9, and chapters 7 and 8). Policy texts allow teachers to use their imagination, innovations and their own perspectives in pedagogic discourses. Although this is less constraining in terms of how it operates, it breeds varied interpretations that may impede progress and a broadening of knowledge in classrooms if not monitored closely. It may call for a deepening of teachers' reflexivity and deployment of disciplinary power to facilitate positive and broader, more complex forms of knowledge reproduction in the classroom in response to emerging and complex socio-ecological issues and sustainable development challenges.

A post-structural analysis has also revealed that teachers, as part of their normalizing strategies, may make superficial connections rather than deeper connections and hence jump to conclusions and focus on familiar aspects in understanding environmental education, as evidenced by claims that 'we already do that in our school' (see sections 3.9 and chapter 10). Teachers also seemed generally happy with the innovation as they saw it as not really introducing anything new.

A post-structural analysis of data from the research has indicated that historically there has been a partnership between the Ministry of Education, other government departments

and non-governmental organizations in the construction of environmental education discourses. This partnership has been fruitful through the work of the Association of Wildlife Clubs of Botswana and the Kalahari Conservation Society in schools. It has been revealed that this partnership was given less recognition in official cycles as it was only mentioned in the National Commission report of 1993, but silenced in all other official documents. Partnership between non-governmental organizations and government in environmental education policy discourses constitutes a particular power relationship shaping pedagogic practices in schools (see section 6.6.4). This may explain why teachers emphasized a lack of resources to take learners outdoors, as the emphasis of most environmental organizations is on conservation of the natural environment and its resources (see section 10.4.9), and on environmental management practices and actions, leading to environmental education being equated with good environmental management practice in many schools.

11.1.4 Globalization of environmental discourse and power relations

The international world power relations influence globalization. These have manifested in relation to economic, cultural and political categories. Globalization of environmental discourse is shaped by environmental politics, technological progress, scientific research and patterns of interaction and communication that cut across national boundaries. The globalization of environmental discourse, a process involving communication and lobbying for socio-ecological sustainability across national boundaries has transcended educational policy arenas. A Foucauldian analysis of transcendental power would see it as both enabling and constraining. It has an enabling power effect as nations are able to share new knowledge and ideas on environmental impact in order to avoid further socio-ecological crisis and promote sustainability. Promotion of sustainability may call for discontinuities in social and natural resource use practices thereby creating a constraining power effect. A post-structural approach to this research has indicated that multi-national corporations and donor agencies, international agreements, protocols, conventions on environmental issues such as global warming, poverty, climatic change, lack of access to clean water etc., also enables and constrains member countries to enact surveillance strategies. The exercise of power is exerted through international organs such as the

UNEP and UNESCO, through policy instruments such as treaties and conventions which survive through providing scientific information on the causes and effects of disasters such as global warming and poverty (see chapter 2). The effects/impacts and risks associated socio-ecological crises explicitly and implicitly regulate social practices relating to the environment and education discourses. This opens up an opportunity for the exercise of techniques of power and procedures on nation-states, rendering power effective. Nation-states are informed by global environmental discourse to formulate policies to address local socio-ecological crises and risks. They draw on new environmental knowledge espoused by global environmental coalitions to design their contextualised policies to effect change (for example, the NEPAD environmental action plan and the African Environmental Outlook reporting - (UNEP, 2006; UNEP., 2002). Environmental education and more recently, education for sustainable development have been identified as tools to effect social change in response to the environmental issues and risks and they now form part of the global environmental discourse.

An analysis of the historical development of environmental education shows that drivers of environmental education discourses such as UNESCO have gradually shifted from conservation-protection discourses in environmental education to sustainability discourse which is rapidly becoming a dominant discourse shaping the field (see chapter 2). This shift is manifested in power relations operating through UN documents and international agreements such as the recently proclaimed general Assembly agreement to implement a UN Decade of Education for Sustainable Development (UNESCO, 2005). Countries are reacting in different ways. A document analysis of policy statements and syllabi in Botswana shows that there is an inconsistency in use of the two discourses (conservation-protection and sustainability discourses (see section 8.3). In some documents, like the Environmental Science syllabus, both discourses appear. This situation may create epistemological and pedagogical challenges in practice as educators have to come to terms with diverse discourses which create new hybrids. This situation shows how some countries can implicitly be influenced by external forces to come up with policies that create unplanned tensions in policy and practice (see chapter 8).

11.1.5 Environmental education policy-making discourses and power relations

A post-structuralist analysis of environmental education policy processes has confirmed that policy-making is a complex, multi-dimensional and value-laden activity that exists in varied contexts (see chapter 3). Policy is always more than text and in education it interacts at the interface of the discursive and non-discursive practices (Fitz, Davies & Evans, 2006). Environmental education policy in Botswana has been influenced by multiple contextual conditions, which are both discursive and non-discursive (see chapters 2 and 6). These include the socio-ecological context and associated issues, lobbying by non-governmental organizations, bilateral and multilateral relations and political will. Policy implementation results in both unintended as well as intended consequences. As in most countries, environmental education policy in Botswana drew insights and experiences from the local context as well as global and international environmental education policy discourses as shown in chapter 6. Global, regional and local power sites added impetus to local pressures to introduce environmental education into the curriculum in Botswana. These power sites exercised implicit power technologies to effect change in the education system. The base of education change was justified by new environmental knowledge emerging from environmental science and politics and global environmental policy and scientific texts (see UNESCO, 2002 and chapter 2).

Policy texts and environmental knowledge introduced by global, regional and bilateral institutions and agreements were recontextualised in a number of local sites in the process. From conception this recontextualisation took place at international levels by organs such as UNESCO, then at different sites locally by NGOs, donor organizations, individuals and government institutions. Within these institutions policy texts were subjected to further recontextualization by officials and professionals in their policy construction interactions, and then by the teachers. Each site of policy recontextualization is not only reactive to power effects but either implicitly or explicitly exercises its own power effects (see chapter 3). The interplay of these diverse effects of power led to the creation of new technologies of power (e.g. enrolling learners in clean-up campaigns) and creates a continual policy recontextualization process that adds to the complexity of the relationship between policy intentions, texts, interpretations and responses. For instance,

in the Botswana context, the global discourse had power over institutions and individuals to change educational policy to include this discourse. A hybrid discourse consisting of conservation/preservation discourse and sustainable use discourse resulted, which had power over teachers who, through normalizing strategies and other strategies of self-governance, translated this discourse into environmental management and Science discourses. This created new technologies of power in schools, influencing teachers and learners' knowledge construction and behaviours.

11.1.6 Emerging silences and exclusions

In providing a post-structuralist analysis of environmental education policy I am interested in what Foucault called 'emergence' in discursive practices (see chapter 4). I am concerned about silences revealed in the text as well as contradictions and tensions contained in the said or written text (see Gough, 1994) and exclusions and their effects. A post-structural analysis of environmental education policy discourses and environmental politics in Botswana has revealed some emerging issues that were historically silent. In the colonial education system environmental education was not a concern despite Botswana's close historical relationship with the environment for livelihood generation. Botswana's first National Education Policy of 1977 did not introduce environmental education into the curriculum despite the fact that the policy was established the same year the Tbilisi Conference was held and five years after the popular Stockholm Conference of 1972. Environmental education emerged as a significant educational issue, in the 1994 RNPE for the first time (see chapter 6 and box 7.1). The policy statements were broad indicating the continuity of influence of the earlier colonial education system and its silences and all statements came from the recommendations of the 1991 National Planning Conference. The policy introduced new instrumental knowledge such as the right attitudes, infusion across the curriculum (see sections 7.2 and 11.2.1). This new knowledge became the focus of policy interpretation and implementation influencing subsequent curriculum design, materials development and pedagogical practices (see chapter 10). It also became the focus of new disciplinary power exercised through discursive practices (see section 11.2). In this process further silences emerged, for example, indigenous knowledge, while identified in debates, was not incorporated in

syllabi, as the Science discourse remained dominant. The dominance of Science discourses also had the effect of silencing broader interpretations of the environmental education focus in the RNPE at school level.

It emerged through deployment of a post-structuralist approach and Foucault's perspectives in this research that there were some key role players that were not acknowledged by the RNPE and government officials as having contributed significantly to the introduction of environmental education into the national curriculum in Botswana. These were the Department of Wildlife and National Parks' through its Conservation Education Unit and the Association of Environmental Clubs of Botswana (former Association of Wildlife Clubs of Botswana). It became visible through data generation and analysis that these organizations pioneered conservation education and lobbied government to introduce environmental education into the education system (see sections 2.5 and 6.6.5). The effect of silencing their contribution had practical impacts as their contributions were not holistically adopted and extended in schools, leaving schools with inadequate support for environmental education interpretation and implementation.

It also emerged from the analysis that there is a lack of synergy and a poor partnership framework between government institutions. For instance, some research participants expressed dissatisfaction about the role of some government departments, indicating that their environmental education responsibilities need clarification, particularly in the non-formal education sector. It was revealed in section 9.5.4 that the new curriculum still teaches the old names of parks. This implies that curriculum designers are not aware of the changes and provides further evidence of how a poor partnership framework can affect curriculum construction and interpretation. The Department of Wildlife and National Parks is not represented in the National Panel on Environmental Education despite its activities in schools. The effects of silencing its contribution at this level could be part of the cause of a lack of synergy between the environmental discourses (environmental management and environmental science) playing out in schools.

11.1.7 Implication and application of theory in policy research

Many of the research results described in this study, generated through the application of a post-structural research design, have helped to explain the ways in which environmental education policy discourses were constructed. This has provided insights into the policy outcomes, creating new vantage points for understanding policy construction and interpretation in Botswana's education system. Foucault's intellectual thoughts were deployed in this study to expose continuities, discontinuities, transformations and processes that have contributed to the emergence of contemporary forms of thought, conduct, and subjectivity (Smart, 2004). Foucault's genealogical method and his concept of governmentality has been deployed as ally to re-articulate and re-theorize a new understanding of a social democratic policy and to contribute to a critical policy analysis in the field of environmental education in Botswana (*ibid*). The central foci of Foucault's genealogical views grounded in historiography are power and knowledge relations. This research has identified different kinds of power operating within environmental education policy discourses, drawing on Foucault's notions of *sovereign and disciplinary power*. Sovereign power operated from global (macro level) ecological and environmental education policy discourses, having power effects on nation-states and agents' actions. For instance, the UNESCO/UNEP, IUCN, WWF, IMF/World Bank environment and education policy discourses filtered down to influence nation-states' actions to initiate environmental education policies and strategies to address socio-ecological crises and risks (see chapter 2). Some of these organizations operated in Botswana influencing major decisions to integrate environmental education into the national curriculum. Nation-states felt obliged to implement environmental agreements, conventions, protocols and environmental education policies, with little evidence of resistance visible in the 1994 process although a reading of the policy shows lack of clarity and certainty which may indicate a particular form of resistance to the globalizing discourses.

At nation-state level, individual countries like Botswana were able to exercise their technologies of power to re-contextualize global policies to effect social changes through, for example, curriculum change. Environmental education policy discourse filtered through historical events from the Stockholm Conference in 1972 to the Rio Earth

Summit in 1992 before gaining entry into Botswana's education system in 1994. Through institutional structures global environmental education policies filtered to micro-levels in schools where policy agents (teachers) were obliged to implement environmental education policy. Related to sovereign power is *disciplinary power* which was observed to operate in schools as teachers responded to the new policy discourse through various self-governing strategies (see chapter 10 and section 11.2). Disciplinary power normally affects those that are subjugated by power. The deployment of Foucault's perspective on sovereign and disciplinary power enabled a deeper understanding of how power operates at micro levels in environmental education policy discourse in Botswana. It also enabled a systematic analysis of the history of the present environmental education policy processes, as they are emerging in schools.

Data shows that teachers were reacting to policy imperatives in their discursive practices particularly in the classroom (see chapter 10). Teachers started exercising new forms of self-governance as they normalized the environmental education discourses and expressed frustrations showing the power effects of the policy in the 'smallest social spaces'. Horkheimer (1972) and Adorno's (1973) thesis of total administration and control is clearly complemented by Foucauldian's view that power operates anonymously. This was confirmed by data from both observations and interviews in schools. New pedagogical discourses were created in reaction to policy regulatory control that was exercised invisibly and anonymously.

11.1.8 Power relation in policy discourses

The process of environmental education policy development in Botswana confirms Foucault's conceptions about power relations and how they may operate in modern institutions. This study revealed that power seems to be distributed hierarchically from a macro level in a linear fashion to the teachers and classroom. Following expert-led policy processes, officials are tasked with ensuring that environmental education policy is implemented by providing explanations and the necessary support to teachers. While some attempts at broadening participation in the policy-making process were visible (e.g. through conferences) the approach in facilitating this process is essentially top-down,

from the Ministry of Education through the departments to teachers and learners in the classroom. However, this does not fix power, as power circulates (Foucault, 1988) and can be exercised at a micro-level and scale, through appropriations of discourse and through resistance (see section 11.2).

The genealogical analysis applied in this study shows that there was application of power from global to local levels within environmental education policy discourses as discussed above. The driving forces were socio-ecological issues that transcend national boundaries and the power and influence of international institutions that have global governance responsibilities (the UN) and the various international discourse coalitions (e.g. UNEP, UNESCO, WWF, IUCN). At a national level similar institutional relations and discourse coalitions were mobilized to effect power and change education policy. A further reflection on how power operates to effect social change is provided in section 11.2 below, through a discussion on the notion of governmentality which provided a deeper understanding of how knowledge and power relations in environmental education policy have influenced social change at the micro level.

A post-structural analysis shows that there is *continuity* of the 1970s conservation-protection discourse in the current syllabi, although this is currently being challenged by sustainable use discourse. For Foucault, continuity is repetition of an origin that eludes all historical determination. Foucault suggests these continuities do not emerge themselves, and that they ought to be disrupted. The reason for their construction must be known, and their justifications must be scrutinized (Foucault, 1972). Foucault suggests that

> … we must define in what conditions and in view of which analyses certain of them are legitimate; and we must indicate which of them can never be accepted in any circumstances. In terms of policy process, the continuities can be problematized at *evaluation stage* to determine policy *impact* and inform *reformulation* within the policy schematic cycle. (Foucault 1972: 28)

In the Botswana context, continuity of the protectionist-conservation discourse may have been influenced by the role of the Wildlife Clubs Association and the Department of Wildlife and National Parks in education policy discourses. Data also shows that there

were some *discontinuities* in environmental education policy discourses. Discontinuity involves threshold, rupture, break, mutation, transformation, initiatives which, through analysis, had to be rearranged in order to reveal the continuity of events (Foucault, 1988). Discontinuity in environmental politics occurred gradually through experience and fresh insights on how the natural environment functions in the face of perpetual exploitation and increased human impact. An analysis shows that environmental discourses that dominated in the early 1960s were gradually phased out and replaced with new sustainability discourses (see chapter 2) although this is not uncontested (Martinez-Alier, 2002). In Botswana the introduction of environmental education into the education system reflects both continuity with earlier conservation and protection discourses and discontinuity as sustainable use discourses are also included. Similarly there is discontinuity with the introduction of learner-centred education and continuity with teacher-led pedagogical discourses in schools. As mentioned in chapter 8, both discourses are running parallel in the Botswana curriculum. This situation could be attributed to either poor planning, or lack of clarification associated with the different discourses, making for a complex policy environment which affects policy interpretation (see chapter 10). Evidence shows that there was lack of clarity amongst policy-makers at the time when the policy was constructed (see chapter 9).

11.1.9 Knowledge relations in policy discourses

Citizen voice results from the capacity of citizen groups to raise awareness and to mobilize others (Keely & Scoones, 2003). In Botswana's policy construction process, citizen voices were limited as they were mainly represented by the membership NGOs (e.g. Kalahari Conservation Society and Association of Environmental Clubs of Botswana) (see section 2.5 and 6.6.5). Although a participatory countrywide consultation was led by National Education Commission there was no evidence that the need for environmental education was popularly voiced by citizens, except by a few organized environmental NGOs such the Kalahari Conservation Society and the Wildlife Clubs of Botswana. This may be a result of preset agendas as reflected in the Commission's Terms of Reference. Secondly it may be result of a lack of community mobilization to be able to articulate environmental issues that would give legitimate claims to incorporate

environmental education into the curriculum. Globally, the dominant environmental discourses are set and framed by western Science, politics and discourse coalitions (see section 2.2). They have the economic power that the South needs. As revealed in chapter 2, the argument for addressing socio-ecological crises is based on western scientific information. Reasoning is reinforced by the discourse of ecological modernization which is driven primarily by global capitalism and economic interest. It was noted earlier that indigenous knowledge was marginalized in the policy construction process (see chapter 9). It would seem that these and other environmental discourses at the interface of poverty and health risks (i.e. environmental security and environmental justice discourses) were not explored in the context of the National Education Commission consultations, which may have provided greater access for community voices. This may also be explained by the fact that it is only in the past four years that educators in southern Africa have started to engage with Sustainable Development discourse (EEASA, 2002).

It emerged from the analysis that the problems facing southern countries such as Botswana, are not articulated in terms of environmental crises but more in terms of social ills such as health and poverty, which takes priority because of manifestations such as unemployment and sickness. Researchers are only now beginning to articulate the relationships between these issues and environmental concerns which may provide more southern-based discourses on environment and sustainability for guiding educational policies and practices (UNEP, 2006). From evidence presented in this study, it would seem therefore, that environmental education policy discourse in Botswana was heavily influenced by internationally constituted environmental discourses (e.g. conservation/preservation, sustainable development, Environmental Science) and was not heavily influenced by community-environment relations as experienced in the context of the poverty-health-sustainable livelihoods nexus, which is more contextually congruent with the issues faced in southern Africa.

Section B

11.2 GOVERNMENTALITY - POWER-KNOWLEDGE IN POLICY INTERPRETATION

11.2.1 Introduction

The previous chapters documented and analysed the emergence of discourses evident in environmental education policy as generated through the environmental education policy genealogy. In the previous section these were discussed in more depth. In this section I provide a critical reflection on the notion of governmentality to understand power/knowledge relations in global environmental education policy discourses, taking the analysis in chapter 10 further through a synthesis of the data in relation to some of the key theoretical vantage points provided by Foucault's notion of governmentality. I focus on the deeper historical context and on the power 'effects' of environmental education policy. I am interested in how techniques of power were exercised to influence environmental education policy discourses from macro to micro levels. The section focuses on both discursive and non-discursive practices to provide a deeper understanding of how power operates at the level of an individual's actions and school practices in relation to environmental education. My reflections on power/knowledge relations are based on what I identified in the previous chapters, and the synthesizing analysis in section A of this chapter.

As indicated in chapter 2 and in section A above, global and international effects of power on environmental education policy discourses are shaped by contextual situations such as socio-economic, political and ecological conditions. Dominating mainstream ecological discourses are some underlying discursive beliefs relating to the natural environment. These include:

- Nature is an entity discrete from humans and endangered by reckless human actions
- This endangered nature needs protection, which can be generated in the form of careful government (Agrawal, 2005: 201).

This has precipitated social pressures to protect the environment. Value is added to this discourse by increasing knowledge and awareness about people's impact on the environment. As a result, *environmental coalitions* that have emerged are influencing

global environmental education policy discourses directly through the UN agencies. The influence is through international agreements, conventions, protocols, declarations and resolutions (see chapter 2). These have become technologies of power exercised over individual member state governments, organizations and individuals to regulate (and self-govern) their relations with the environment. Foucauldian perspectives on micro functioning of power relations have provided perspectives on how power operates in construction and interpretation of environmental education policy in this study. I have drawn on Foucault's' analysis of the 'reason of state', that is how the state operates to construct frameworks for governance (i.e. through construction of environmental education policy discourses). I also drew on Darier's (1999) three axes for the modern deployment of power to provide a deeper understanding on how power and knowledge play out in environmental education policy discourse construction and interpretation (see chapter 4). These three axes are: *institutional centralization***,** *emergence of new instrumental knowledge, and diffusion of power effects across the entire social body.* The three axes for the modern deployment of power are explained in section 11.2.2 below, and provide insight into how new forms of governmentality are constituted.

11.2.2 Modern deployment of power

Institutional centralization around governmental agencies occurs around policy development and construction, such as in the case of the Revised National Policy on Education. The construction of environmental policy discourses in the RNPE shows how technologies of power have "dispersed centres of environmental regulation and ecological decision making" (Agrawal, 2005: 202-3) in the education sector (amongst others). Environmental politics have shifted (see chapter 2), enabling changes in complex environmental narratives through theoretical innovations. The shifts are leading to an apparent recuperation of a loss of local control of the use of resources through centralized policies although some, for example Shiva (2003), argue that they are leading to a greater commodification of natural resources (Lotz-Sisitka, 2004). Centralization of the use of natural resources and the top-down policies of control and exclusion are shifting to decentralization and inclusion/participation of the local communities in natural resources management, as is evident in Community Based Natural Resources Management

(CBNRM) initiatives, sustainable use discourse and in a greater emphasis on environmental education in policy discussions. Articulation of community participation in resources management and policy construction has been one of the more recent strategies in global environmental policy discourses. The establishment of global environmental organizations and their institutions "changed the nature and possibilities of control by introducing dispersed but coordinated regimes of regulations" (Agrawal, 2005: 203) effectively establishing a diverse field of social action denoted by knowledge, politics, institutions and subjectivities which in reality, run through each other (*ibid.*). Environmental politics has historically influenced environmental discourses by exerting technologies of government.

The *emergence of new instrumental knowledge*

As Popkweitz ((Popkewitz, 2001c: 16) put it "knowledge is linked to power by the micro processes through which individuals construct their sense of self and their relations to others. Power functions through individualization that disciplines and produces action rather than merely repressing action". The RNPE has identified and constituted the '*right' attitudes, environmental ethos,* and *cross-curricular* approach as new instrumental knowledge regulating the introduction of environmental education into the Botswana education system. This constitutes knowledge aimed at regulation targeting social practices. The new environmental knowledge is often associated with expert authority and it often becomes the basis for new policies designed to address deficiencies in existing environmental practices. Environmental knowledge enables certain sorts of action, which may or may not be beneficial to the actor. This sort of 'powerful' knowledge is easiest to recognize in the struggle against material conditions (Dant, 1991). Knowledge about the different ways to protect the environment can enable people to act in a way, which will maximize the effects of their efforts to address socio-ecological issues and risks. For example, schools introduced environmental management activities to address socio-ecological issues such as poor waste management in local school-community contexts.

As shown in this study (chapter 10) the application of knowledge to action occurs in social contexts and different members of the group feel the effects of power differently. The analysis of syllabi showed that the type of dominant knowledge leading environmental education policy discourses in Botswana is associated with the history of conservation and the scientific and western or expert authority knowledge claims (see section 2.2). Scientific and western ways of knowing and explanations about the environment (e.g. environmental science and management and sustainable use) have gained currency and dominance in environmental education policy discourses globally, which affects country-based applications, as shown in this study. The scientific knowledge reproduction discourse use manifests as a micro technique of power to impose change. This knowledge could also be used in pursuit of change amongst individuals, institutions or communities who possess such knowledge, such as the Wildlife Clubs who influenced policy construction and teachers' views on the necessity of field trips for environmental education in schools or the School Environment Policy resources that influenced environmental management practices in some schools. Scientific knowledge about the environment and education discourses shapes policy discourses, practices and the training programmes used to orient people (e.g. teachers) to use the new discourse practices (see chapter 8). Equally central to new knowledge was the shifting from exclusionary, centralized, non-democratic control over resources (through conservation policies) to new knowledge and practices around natural resource use to support sustainability, evident in Community Based Natural Resources Management approaches and the introduction of school environmental policies and management planning. As shown in this study, privileging of certain knowledge also has the powerful effect of silencing other potentially valuable forms of knowledge (e.g. indigenous knowledge).

Diffusion of power effects across the entire social body

A post-structural analysis of data shows that power exerted on a global scale by environmental organizations such as UNESCO on institutions such as schools at micro level is also exerted over teachers and departmental officials, as well as policy-makers, NGOs, and others involved in the educational process. Evidence in the study shows that schools, in turn, wish to exert similar power over communities and parents as they seek

efficacy and congruence in their teaching of environmental education in schools. There are multiple sites of micro-powers in society, for example, teachers exert power on their learners, power is exerted over teachers in the school context and the wider education system. The dynamics of power relations between the system, the school, the teacher and her/his learners and the community are not constant. The diffusion of power affects the entire social body and manifests powerful effects on teacher's decision-making and reasoning, their judgments of their own competence and achievements (see chapter 10), and on their epistemological practices. Sections 11.2.3 and 11.2.5 provide a detailed analysis of the diffusion of power effects on teachers explaining where and why they occur as revealed in this research.

11.2.3 Technologies of power

Foucault's notion of technologies of power had been genealogically deployed in an attempt to make intelligible the actual practices in the classroom in relation to environmental education. Technologies of power relations in pedagogy were exerted or exercised through techniques of normalization, exclusion, surveillance, totalization, individualization, and regulation (these technologies of power relations are analyzed in the next paragraphs in relation to this research). These techniques were productively exercised in teaching across the research sites. The techniques enhanced pedagogical efficiency and had material effects in the non-discursive space (e.g. the neater and cleaner environment in schools). The non-discursive practices that might be affected by micro power include peripheral practices such as dress code, eating habits and how learners relate to the environment and to each other. Power techniques may occur in combination, that is simultaneously in an unstable manner, diffused and emanating from un-fixed multiple sites or in a *field of ordering forces* (see Gore, 1998; Deluze, 1988 & Foucault, 1977). In this research there was evidence of techniques of governing(ment) or what Gore (1998) referred to as *disciplining practices* connecting knowledge and power (Foucault, 1983) in the classroom (see sections 4.3.3 and 10.6.7).

Disciplining practices constitute a strategic dimension of power realized as manoeuvres of normativity, strategic integration, and tactical productivity (Gore, 1998). By discipline

here I am referring to being subjugated to a certain specialized domain of knowledge and under a certain regime and order which is common in schooling. Teachers and learners exercised their disciplinary power both in the classroom and outdoor activities in relation environmental education teaching and learning in response to the RNPE. The next section provides an illustration of disciplining practices or techniques of power identified in this research.

Disciplinary power relations in the classroom

I made observations about power relations in schools, particularly in the classroom while teachers were teaching (see chapter 10). The observations covered regulated communications such as lesson presentations, questions and answers, signs of obedience, levels of knowledge and surveillance. A poststructuralist approach to each technique of power is provided below explaining how and where they emerged.

Surveillance: Surveillance in the classroom involves close supervision, observing or watching or expecting to be watched or observed and calling learners by names to enhance pedagogy (Foucault, 1977; Gore, 1998; Popkewitz et al., 1998). Surveillance was frequently observed during teaching, both indoors and outdoors. For example, the teacher moved around the classroom checking if learners were looking at the right page or carrying out the exercise as instructed. Through surveillance individual learners regulated themselves by behaving well, showing obedience and carrying out tasks as the teacher gave the instructions. The exercise of power through surveillance seems to be positive and productive in the classroom as it helps the teacher regulate her/himself, monitor the learners and enables the learners to regulate themselves as well as monitor each other (Foucault, 1977; Popkewitz et al., 1998). The positive aspect of this deployment of power is that it may create an environment conducive for learning and teaching. The role of the teacher was constructed as that of facilitator in the learning process (see chapter 8). Most of the time learners played a reactive role, reacting to the teachers' instructions and guidance. The learners exercised their disciplinary power by standing while answering questions showing obedience.

Examinations and assessments in schools are surveillance techniques where the exercise of power and the reproduction of knowledge are linked together. Botswana's primary schools conduct two examinations, one at the end of four years of lower primary level and the final one at the end of upper primary level in the seventh year. These disciplining practices (examinations) are considered important in schooling as they are also *surveillance* techniques of power. Teachers may consider it their obligation to assist learners to pass the examinations. The pass rates or level would indicate that reproduction of knowledge had occurred. Evidence from this study shows that the respondents were not happy about the exclusion of environmental education from the examinations indicating the power effects of examinations in governing conduct in schools. Teachers felt that environmental education was valuable, and if included in the examination system, would motivate them further in their teaching. This also reveals that teachers may (consciously or unconsciously) be willing to adhere to these effects of power on their practice.

Gore (1998) describes governmentality as the art of self-governing and effects of political rationality, personal decision making and reasoning through which individuals judge their own competence and achievements. Therefore, teachers may take examinations as a technique for judging their own achievements. The learners may be motivated by the knowledge that they are required to pass the examinations to identify their own abilities and skills as well as to proceed to the next level. Their conduct throughout schooling may be disciplined by the power of the examination as a surveillance technique. These may be reinforced by parents' expectations and interest in the assessment record as an indicator of learning progress and evidence of teaching and as part of the hope to pass the final examinations. As Foucault (1977) has observed "'disciplinary power' emerged with the advent of modern institutions and extended throughout society, so that continuity in power relations are evident not only in schools …but also outside of these institutions" (Gore, 1998: 232). This research has revealed that teachers feel that environmental education is not examined and hence not taken seriously by the school management team (SMT) and other teachers (see section 10.6). This may explain why environmental education implementation is not progressing well. Examinations are central to the official

school discourse. The official school discourse comes with certain rules regarding the conditions under which a discourse can be drawn upon and/or comes with discursive forms of internal discipline through which a discursive order is maintained. The examinations as *surveillance* techniques of power may compromise pedagogical practices in the classroom as teachers may feel obliged to teach for examinations at the expense of the learner-centred education orientation as it emerged from the syllabi analysis in chapter 8. This tension between an examination-driven system and a learner-centred system (articulated in policy) was evident in the lack of uptake around learner-centred approaches in the classrooms. This implies that environmental education implementation is also affected by this lack of correlation between what the policy articulates and what is happening in practice.

The use of the School Environmental Policy (SEP) Pack in some schools was also a surveillance technique as it affected both teachers and learners and involved the School Management Teams in its monitoring its implementation. Both the teacher and learner behaviour are regulated by the requirement imposed or negotiated through the SEP pack management plans to improve school environmental performance.

Normalization: this concerns norms of behaviour, of attitudes, of knowledge (Gore, 1998) (see section 4.3.5). Through the power of expertise (or symbols of scientific authority) certain knowledge "assumptions are normalized and subsequently internalized by individuals" (Keeley & Scoones, 2003: 23). In the context of this research, new knowledge about socio-ecological crises (e.g. pollution, depletion of water resources) framed environmental education policy debates (see sections 2.2 and 6.5.2). Environmental issues have historically become dominant in environmental discussions and hence have shaped environmental education policy. Through textual policy styles, charismatic presentation of issues and speaking, and non-rhetoric actions (such as funding) and power techniques were deployed to trigger changes in social practices. Such change either constrained or empowered people in their relation to the natural environment. In other words, knowledge assumptions about environmental issues had a

normalizing effect on policy-makers' conduct and influenced environmental education policy discourses.

Evidence from this study shows that teachers exercised their disciplinary power within the context of their knowledge and experiences and deployed a normalizing technique by

- not seeing environmental education and sustainable use discourses as different to Environmental Science and Science, and by
- equating them with the need for environmental management in schools (i.e. localizing the discourse) to the observable (e.g. litter) and the familiar (see chapter 10).

These two normalizing strategies have had a profound effect on the way that the environmental education focus in the RNPE is being realized in Botswana, leading to a potential narrowing of environmental education discourse and unintended governing strategies (e.g. enrolling children in ongoing clean-up campaigns).

Exclusion: may be an exclusion of an individual learner, identities or practices. According to Gore (1998) very often exclusion and normalization occur together. In this study, when teachers were normalizing environmental education through equating it to environmental management activities, they were excluding other essential components of environmental education that the RNPE expected them to infuse across the curriculum. Exclusions happened when policy makers normalized global issues-based discourses excluding indigenous knowledge and local culture. This may have had implications for environmental education as the curriculum development process neglected indigenous knowledge in the construction of the *Environmental Education Guidelines* and subsequently the subject syllabi (see chapter 8).

C*lassification*: is another technique of disciplinary power found within the research i.e. differentiating groups and individuals from one another, classifying oneself, classification of knowledge, ranking and sorting functions of the school. For instance, classification of knowledge happened when teachers considered Environmental Science and Science as environmental education as they perceived the three to be sharing contents that teachers are familiar with. The respondents excluded environmental education by normalizing it

and classifying it as familiar knowledge. They grouped environmental education with Science, Environmental Science and Social Studies claiming that the "objectives are related and some are similar" (see section 10.6.4). This classification of environmental education elaborated teachers' exercise of disciplinary power within the pedagogical site.

Individualization: Another technology of power emerges at the level of connecting *self and power (or individualizing practices*) – these techniques produce facts, subject domains, and rituals of truth, e.g. pastoral power. Individualization is another common technique of power in pedagogy that was identified in this research. It involves giving character to oneself or another. It is commonly identified by the use of 'I'. For instance, "I take part in environmental fairs and rallies" (FG5.5), and "I do action plans to show different tasks to be carried out by each teacher in the school"(FG4.1) (see section 10.4.6). Related to individualization is totalization.

Totalization: Totalization is another technique of power that is identified by collectives achieved through the use of words such as '*we*'. Totalization techniques are used in pedagogical discourses for governing or regulating groups, students, and teachers. For instance, teachers use the School Management Team, '*we* were looking for funds to support teachers' workshops" (see section 9.2.2), "*we*" referring to others and to themselves.

Regulation: involves rules or restrictions. It is actually manifest in other techniques of power already discussed. Schools thrive on rules and regulations in their discursive practices. Both learners and teachers are subjugated to a set of rules. Some of the rules are written while some are normalized through practice. Some of the schools have environmental rules on their staffroom notice boards, while some captured 'clean environment' in their school mission and vision statements confirming the emergence of new forms of regulations and environmental management practices in the schools (see chapter 10). Regulations may be influencing the environmental management that is practised in all research sites.

This research shows that techniques of power were either explicitly or implicitly exercised. For instance, totalization and individualizations were explicitly exercised in the case where learners were addressed individually or as a group. Surveillance techniques were either exercised through observation or checking whether learners were performing the tasks given. The regulations and other practices were not explicitly exercised but were invisibly exerted. This was consistent with Foucault's perspective on invisibility of governmentality in modern society (Gore, 1998). Other techniques of power such as normalization, exclusion and classification were observable (see section 4.3.5). Learners' power was more 'reactive' than 'active' in the circulation of power (Deluze, 1988). That is, in most instances, learners were reacting to teachers' actions, for instance, acting when instructed to go out of the classroom to look for insects during a science lesson or answering questions in the classroom.

11.2.4 Environmental political analysis

A host of power techniques exercised by global and international environmental education policy discourses enabled consensus on the dire need to address the socio-ecological crises (see chapter 2). These emerging environment policy discourses were in some countries made possible by international aid funds meant to support the decentralization of environmental governance. Funding became another regulating technique, as the recipients were obliged to fulfil agreements entered into between funders and the recipients (mainly countries from the South) (see chapters 2, 3 and 6). This study revealed that Botswana received aid and entered into partnership agreements and projects to facilitate environmental education integration into the education system (see section 6.5.3). Although it is not categorically stated that environmental education policy discourses in Botswana were influenced by donors or inter-governmental collaboration, evidence in chapters 6 and 9 points to their influence. Bilateral relations with UNESCO, UNICEF, Sida and USAID bear testimony to the effect that these organizations played a historically valuable part in the introduction of environmental education into the Botswana education system. Given this situation I propose that these organizations deployed a strategic technique of power to influence the decision to incorporate environmental education in Botswana. In addition, global and regional

environmental education policy discourses (see chapter 2) were other regulating discursive practices that contributed to the incorporation of environmental education into the 1994 RNPE in Botswana. The SADC conventions and protocols are another regulating technique to ensure that Botswana did not neglect her obligations to these regional environmental policies. For example, the SADC-REEP supported the introduction of a School Environment Policy and Management process, which involved a resource pack that was distributed to all schools in the country. This pack is influencing environmental management practices in some schools where it is used (see chapter 10).

11.2.5 Teacher's reflexive power and self-governing techniques

A Foucauldian approach to data analysis has confirmed that power functions as a technology of self and involves the subject in working upon herself or himself. Reflection is a form of interrogation which includes the interrogation of self. A teacher's critical reflexive consciousness facilitates an awareness of the patterns that organize social life, the historical *a priori* that conditions what the teacher can say (Foucault, 1988). In this broader social awareness, personal assumptions may also be brought to consciousness and influence frameworks for thinking and practice, which may be better understood as a result of reflection. For example, teachers reflecting that environmental education is not really anything new and then equating it to Science.

Teachers' reflexive power appeared strong in the classroom while teaching. The process of reflection may serve to demystify knowledge and to make visible relations of power described by Foucault as among the best-hidden things in the social body, both in the social fabric of everyday life and the construction of knowledge. Reflection may enable teachers to pave the way for a new reality to emerge (see Popkewitz, 1991). Popkewitz (1991) posits that power is embodied in the manner in which people gain knowledge and use the knowledge to intervene in social affairs. In this study, evidence shows that teachers gained knowledge through a variety of forums including the RNPE, training workshops, School Environment Policy resource, teaching of Science, Wildlife Clubs of Botswana, and the educational activities of the Department of Wildlife and National Parks. The teachers' pedagogical discourses have confirmed Popkewitz's (1991) view

that to recognize one's own inadequacy was a pre-requisite to imagining alternative practice. This was evident from interview data as some respondents admitted that their knowledge was limited or constrained by contextual situations such as lack of training and teaching resources and learning support material, and indicated the need for fieldwork to enhance learning in environmental education. The power to imagine possibilities and the power to transform productive practice appeared to be connected to high levels of reflexive power as teachers were ready to improvise or request external resource persons where their knowledge was lacking in the teaching of environmental topics. This showed the productive effects and potential of reflexive power on individual teachers where deployment of various skills and expertise were required. This was evident from the interviews as some teachers acknowledged inviting wildlife and forestry officers to their classes to help teach topics that they were not competent to teach (see chapter 10).

Structural components of power emerged as constraints on classroom practice and hence on teachers' capacity to achieve coherent policy-practice relationships in their teaching. Data analysis from this research reveals that teachers' views on the nature of Science knowledge (as environmental education) and the value they place on this knowledge influenced power relations and highlighted the extent to which an individual identifies with their teaching subjects and content relative to the prevailing hierarchies of knowledge. It also serves to highlight the connections between teachers' personal epistemologies and their power relations. Teachers' ability to conceptualize, articulate and argue for their beliefs and views on knowledge, learning and education are important components of power that shape pedagogical discourses in the classroom. For example, some teachers claimed knowledge of environmental education and having no problem with it as it is not new to them (see chapter 10). Data also revealed that teachers' reflexive power or their capacity to reflect on their practice as well as their positions within educational institutions and their attendant power structures, did not translate or increase their capacities to also recognize the difference between Science and environmental education. Data shows that teachers' imaginations, that is their capacities to envision new and alternative possibilities for environmental educational

implementation projects and practice, are strong (see section 10.6), yet also determined by outside influences, e.g. policy discourses, quality of training and available materials.

11.2.6 Environmental education policy discourses, contradictions and tensions

An analysis of data shows structural support problems as constraining agency in response to policy. Teachers are supported from national to regional levels by subject advisors and an inspectorate. Education officers organise in-service training and support cluster groups. At school level, support is provided by Senior Teachers and the School Management Team. It emerged from data analysis that there is no subject advisor responsible for environmental education at regional levels. It also emerged that there are limited specific teaching and learning resources to help teachers to teach environmental education infused across the curriculum. This situation means that teachers rely on their experiences and interpretation of syllabus objectives. They exercise their reflexive power to reflect on their profession, policy obligation and role in the classroom, and react by improvising to make their lessons successful employing various teaching techniques and through adopting various normalizing strategies to self-govern their practice in relation to the policy intentions. Teachers are confronting various challenges ranging including limited or inadequate material resources, funding and transport for outdoor learning, as well as lack of or inadequate support from supervisors and colleagues' attitudes.

It also emerged from data that teachers' interpretation of environmental education policy is influenced by contextual conditions created by the Ministry of Education structure (macro level). The RNPE statement on environment education is too general, is subject to multiple interpretations and has an embedded hybrid discourse both from an environmental and a pedagogical perspective. Related policy documents such as the *Environmental Education Guidelines* and subject syllabi carry varied levels of interpretations shaping pedagogical discourses in schools as they filter down and are recontextualized at the classroom level.

It also emerged from the data analysis that most research respondents are not openly opposed to the introduction of the environmental education policy or ready to admit that they do not understand what they are required to do. However, their confusing of

Environmental Science with environmental education and complaints about in-service training indicate that their understanding needs to be clarified through in-service training. An examination of the contextual profiles of respondents and schools shows a mixture of ideal and hostile situations influencing the implementation process. The respondents had carefully employed technologies of power in normalizing Environmental Science and or environmental management activities as environmental education. It was through careful analysis of their responses that conclusions can be drawn that some were deploying certain power techniques in expressing their experiences, feelings and perceptions about their teaching and competencies (see chapter 10). Most of the respondents found the introduction of the policy valuable to the children and the community, despite logistical and professional problems experienced.

The study shows that there are issues of institutionalisation, power relations and governmentality at play in the policy interpretation and implementation process. The research shows varied views about environmental education. The challenges facing implementation include the attitudes of some teachers. There are also those who feel sceptical about introducing environmental education citing associated problems such as lack of transport for educational tours and learning support material. Teachers also complained about prescribed textbooks. The research indicates that teachers still rely on the textbook for contents as a way of governing their teaching practice.

A post-structural analysis of data further revealed that teachers are expecting a linear progression of pro-environmental knowledge leading to immediate environmental awareness and action (see section 10.4.9). This rationalist model assumes that educating learners about environmental issues will automatically result in more pro-environmental behaviour (see Kollmus & Ageyman, 2002). Teachers also reflected an understanding that environmental action and change is not only an individual endeavour, through their concern for community participation in ensuring that environmental actions and learning in schools are sustained.

An analysis of the data has revealed that the Environmental Education Panel suggestions were ignored when designing Environmental Science syllabus and hence there was poor infusion of environmental education. The subject content is more science-oriented privileging material and mental processes (see chapters 7 and 8). This implies power relations at curriculum design level influenced the decision to consider Science contents over environmental education despite advice from the Environmental Education Panel. This also explains the dominant Environmental Science discourse in practice at school level. Data has also revealed that what is stated in the RNPE is not actually happening. The policy statement on environmental education and practice reveals certain inconsistencies relating to interpretation and implementation that require clarification. For instance, the dichotomy that has been constructed between environmental education and Environmental Science in the process of normalizing the new discourse needs immediate clarification. The introduction of Environmental Science may have misled both curriculum developers and teachers to misconstrue it as environmental education. The clarification could focus on what constitutes each one of them and what is common between them (see section 10.4.7).

11.2.7 Power relations in the classroom situation

Power relations in the classroom may be influenced by education policy statements as illustrated by the result of a critical discourse analysis in chapters 7 and 8. Evidence from a transitivity analysis of the policy statement has revealed that policy text is laden with official assumptions that may mean different things to policy recipients. For instance, interviews with policy-makers demonstrated that 'right attitudes and skills' had different meanings for policy designers. These different understandings could extend to curriculum designers and teachers and would then influence epistemological and pedagogical practices in the classroom. Teachers in the classroom were responding to government policy (RNPE) in the exercise of their disciplinary power. Evidence from the study shows that the RNPE has been constructed with material and relational processes constituting asymmetrical power relations in policy discourse (see chapter 7). In other words, the policy has inscribed power and authority to be respected by teachers in the execution of their duties. For Foucault the practice of government involves structuring the possible

field of conduct or action of others. It is a question of power, but the power relation is one that involves a mode of action exercised over the actions of others who have available to them a range of possibilities. For teachers, power is exercised over them as free subjects able to refuse or to submit to "influence being exercised over their conduct" (Smart 2002: xiv).

In the case of a classroom situation in this study, the teachers were teaching and/or giving instructions and learners were responding as expected. The teachers had a range of possibilities to act implicitly or explicitly in teaching and learning discourses. Although some tried to vary their teaching methods, practice confirmed the objectification of learner by the policy as a 'receiver' of instructions in the reproduction of knowledge. An analysis of policy statements shows that the learners are constructed with mental processes at the receiving end of the policy instead of being partners in knowledge construction (see section 7.3.2 and chapter 8). In this study learners played a more reactive role as teachers exercised their power in the teaching and learning process. For example, learners answered questions orally, read passages, and collected samples for Science lessons. These activities promoted both verbal and material processes. However, learners' behavioural and verbal processes were limited in practice despite the fact that the syllabi objectives privilege learners more than the teachers (who are often objectified and their roles implied in the text). For instance, all objectives in the syllabi analyzed began with 'learners should be able to…' specifying their role in the learning process in an imperative mood (see chapter 8).

The research has revealed that power relations are embedded in the classroom discourses. Like Foucault (1979) and Smart (2002: xiv) observe, governmentality is "inescapable as it involves action(s) being exercised on other(s) actions." For example, teachers asked questions in the classroom and learners reacted by raising their hands to answer questions (see section 10.6.7). In this situation the conduct of the learners is directed in a face-to-face encounter while power is being exercised over their actions. Teacher and learner relationships in the classroom demonstrated how power is routinely exercised over the actions of learners to facilitate learning. The empirical evidence of the effects of the

teachers' actions could be seen in the learners' chorus answers, as they raised their hands and stood up to answer questions. However, "there is always the prospect of recalcitrance, intransigence and refusal" (Smart 2002: xiv). For instance, not all learners joined the chorus answering. The power effects are not only between teacher and learner. There is an invisible actor, the education policy, to which the teacher reacts and its power effects on the teacher are responsible for the teacher's actions. The teacher's conduct of conduct (governmentality) is regulated by institutional practices, professional obligations and contextual factors, as shown in this study.

Evidence from document analysis indicated that classroom practices were constructed through syllabi objectives. The objectives were focused on learners suggesting the promotion of mental, material, verbal and behavioural processes in the learning processes. The objectives governed classroom activities either by constraining or enabling the teachers and learners to focus the learning process on particular content in a particular manner. The most popular processes promoted by the objectives of the Environmental Science, Science, and Social Studies syllabi were mental processes. This was indicated by action verbs such as suggest, predict, appreciate, compare, interpret, acquire, distinguish, and determine (see chapter 8). For instance, "*students should be able to interpret changes in weather conditions" and "students should be able to acquire knowledge on conservation of animals"*. The objectives focused on learners but were stated in an authoritative official voice implying absolute compliance by both the learners and teachers (see chapter 8, tables, 8.4, 8.5. and 8.6). The next most popular process was the material process indicated by words such as record, sort, measure, collect, draw, group, and model. For instance, "*students should be able to demonstrate ways of making water safe to drink"*. These objectives construct the learner as someone capable of developing mental and material skills, able to perform the suggested activities in environmental education. The objectives implied that these processes are appropriate and in line with the intention of environmental education. The objectives also suggest the content, which is more oriented to scientific-based knowledge than to a broader view of environmental education. These objectives influenced the teaching and learning in the classroom including the outdoor activities observed in this study. The objectives leave the

teacher to work out how the mental and material processes could be enhanced through learner-centred approaches. As stated earlier, teachers were governed by these objectives as they are stated in a compelling manner. They tried to practice learner-centred pedagogy by engaging learners in group work and hands-on activities.

Data from this study shows that mental and material processes were complemented by objectives promoting verbal and behavioural skills. For instance, verbal skills were promoted through objectives such as *'learners should be able to describe a clean environment'* stated with in an imperative tone. The word 'should' adds emphasis to the authoritative voice of the objective. This has influenced teachers' reflexive power in the exercise of their disciplinary power in the classroom as they facilitate learning with the aim of achieving the objective. The behavioural skills were limited in the syllabi objectives and not explicit in practice in all the observed lessons. For example, one of the objectives included *display assertiveness and respect*. The process requires the individual to exercise disciplinary power on himself/herself to act or behave differently based on the existing or acquired environmental knowledge. The objectives imply that learners are capable of employing different mentalities of self-governing to reduce their impact on the environment and show respect to the environment

11.3 Conclusions

Power and knowledge are inextricably related and exist at the interface of genealogy and governmentality concepts both of which are connected to microphysics of power. The deployment of genealogy and governmentalty perspectives has enabled me to provide a deeper understanding of the dynamics of various elements of the social structures and their intersections in the context of history in environmental education policy discourses. Through the genealogical method this research has demonstrated how environmental education policy may be constructed, and how it could be shaped rather than prescribing a fixed or blueprint for environmental education policy development discourses. No form of power or a universal power that enables or constrains is privileged by the analysis. The analysis is poised to demonstrate the possible spaces of freedom that may still be enjoyed by those subjugated and how changes may still be effected in environmental education

policy discourses in Botswana. It demonstrates that power could be exercised differently in modern society to bring about change. It is, however, imperative that policy-makers understand the potential of new environmental discourses in social practices. The micro-level analysis of power functions enabled me to understand what causes and influences practices and actions in schools, in the classroom in particular, and potentially to recommend what might be the way forward to enhance the implementation of environmental education policy in schools in Botswana. Conclusions and recommendations are provided in the next and final chapter.

CHAPTER 12
CONCLUSIONS AND RECOMMENDATIONS FOR POLICY DEVELOPMENT AND INTERPRETATION

12.1 Introduction

The previous chapters traced the historical development of environmental education policy discourses from global, regional to national levels in Botswana, reflected on policy theoretical frameworks and explored policy development processes, interpretation and the underlying power relations. This chapter provides conclusions and recommendations for environmental education policy development and interpretation (and implementation). I provide reflections on the study aims, research questions, genealogy and governmentality (and theoretical framework), research methods and major findings. This final chapter draws together the evidence and analysis of earlier chapters. Conclusions and comments are based on an analysis in relation to theory, policy construction and interpretation, implementation in schools, reflections on the research process, the content and assessment of what the study has been able to achieve. In summary, this chapter provides a synopsis of the study and a summary of findings, which explored the interface of genealogy and governmentality. Limitations of the study and its methodology are articulated offering some recommendations and reflecting upon the entire research process.

12.2 A comment about this research

This research reported on the genealogy of environmental education within the RNPE framework and the history of the Botswana education system. The investigation explored and examined the notion of governmentality at the school level through policy interpretations and implementation practices. In this research I was interested in better understanding both discursive and non-discursive practices in Botswana's education system that influence the present environmental education discourses. The research is heavily influenced by the writings and theories expounded by a French philosopher, Michel Foucault. Other writers who influenced the theoretical framework of this research are Fairclough (1992, 1989), Janks (1997) and Popkewitz (1991, 1998, 1999, and 2001). More insights were drawn from Foucualt's theoretical admirers as well as antagonists of

his ideas and methodologies. Other contributors are acknowledged in the text as their ideas informed clarification of some theories, notions, concepts and the research process itself.

Research goals

In my opinion this research has achieved its goals (see chapter). The first significant achievement is the personal empowerment achieved through investigating a problem of concern in the field of environmental education policy I was deeply concerned about and which influenced my work as a teacher educator. This post-structural qualitative research has enabled a deeper understanding of Botswana's education history and environmental education policies. It has enabled an understanding and appreciation of how power relations play out in practice enabling or constraining policy developers and implementers. The research provides insights which can potentially inform future policy review/revision, formulation, interpretation, implementation and research.

Research questions

A post-structural approach has enabled me to gain answers to the research questions that guided the investigations. I was able to establish the key role players in environmental education policy development. It provided tools for uncovering the initial motivation for policy development and implementation in Botswana. A genealogical approach enabled a deeper understanding of why and what motivated environmental education policy development in Botswana in relation to global environmental policy discourses and local circumstances (see chapters 2, 6 and 9). I was also able to establish the forms of reasoning (epistemologies) that lead to the incorporation of 'environment' in education policy through document analysis and interviews with some policy-makers. Data analysis revealed that epistemological influence on the incorporation of the 'environment' into education discourses was informed by knowledge of the socio-ecological crisis constructed both globally and locally. New environmental knowledge and experiences, lobbying, power relations and political will to incorporate innovations into the education system provided promising opportunities for the development of environmental education policy discourses in Botswana in the mid 1990s (see chapters 2, 6, 9 and 10).

A post-structural analysis of data has enabled me to provide a deeper understanding of how policy construction influences its interpretation and implementation. A deconstruction of policy statements using critical discourse analysis techniques confirmed Foucault's perspective on providing more insights into a discourse by problematizing the taken-for-granted. It emerged from chapters 7, 8, and 10 that the way policy text is constructed influences its interpretation and hence its implementation. However, there are other contextual influences that contribute to policy interpretation and its implementation such as social, political and economic constraints contexts (see chapters 3, 4 and 10). The teachers' exercise of disciplinary power based on their experiences and knowledge also influenced and shaped the construction of environmental education in practice. Teachers deployed their disciplinary power in constructing and equating environmental education with Science, Environmental Science, and environmental management activities. Data analysis also enabled me to establish how policy influences teachers' decisions, reasoning, and judgments of their own experiences and competencies in environmental education (see chapter 10 and 11). It was revealed that power-knowledge relations are a significant factor governing epistemological and pedagogical discourses in schools.

Institutions operate through rules and regulations. Many of these rules and regulations in discursive practices relate to policy. Institutionalization of environmental education means it falls within obligatory requirements constraining or enabling the teacher to implement it within prevailing contexts. It was revealed through data analysis that teachers' decisions and reasoning were influenced by contextual conditions such as their personal experiences, available resources, support structures and their competencies in environmental education (see chapters 3 and 10). Teachers' decisions, reasoning and judgment of their experiences and competencies demonstrated knowledge-power relations and confirmed Foucault's perceptions on power as enabling, constraining and as exercised, not possessed only, by the governors. As indicated above, answers to the research questions were established through the use of appropriate research techniques relevant to post-structural enquiry.

12.3 Research Methods

This section reflects on the research's methods relevant to post-structural perspectives. Data collection techniques were carefully selected to generate and collect data relevant to the research topic and questions (see chapter 5). The tools that were used in data generation were carefully designed in relation to the post-structuralist orientation and reflexively employed to ensure quality. Data was manually processed and rigorously and systematically analyzed based on empirical evidence gathered through documents reviews, interviews and observations. Making synergy between theory and practice in research has been an arduous but worthwhile experience in this post-structural research exercise particularly when working with data. The modes of inference deployed in data analysis, that is *deduction, induction* and *abduction* have assisted me to explore power relations in this genealogical policy study. The inference modes were also instrumental in exploring the notion of governmentality as perceived by Foucault. A combination of inference modes and critical discourse analysis

- was instrumental to the detection and revelation of meanings, power relations and coherence to gain knowledge of social structures,
- enabled identification of emerging new environmental knowledge, and
- enabled identification of technologies of micro-power as exercised on or by individuals, groups, institutions etc. as manifested in environmental education policy text or discourses.

The challenges in this post-structural research included differing social situations different at the various research sites. This makes generalization from this research impossible. The research design did not seek, however, to generalize but rather to deepen insight into policy construction and interpretation.

Critical Discourse Analysis as a research methodological approach

Critical Discourse Analysis follows a critical approach to problems, which is a characteristic of post-structural research. This approach provided a useful critical vantage point in this environmental education policy research (Meyer, 2001). CDA makes power relationships explicit, which are frequently hidden, and thereby helps to derive results

which are of practical relevance. Critical Discourse Analysis has proved to be a valuable research tool in environmental education policy research as it has enabled me to invoke the idea of mediation to understand aspects of environmental education policy discourse using some sociolinguistic categories e.g. actor analysis, verbal mode etc. (see chapters 7 and 8). By providing this analysis I was able to understand discursive and non-discursive practices and manifestations (products/objects).

It emerged in chapters 7 and 8 that language "is the central means and medium by which we understand the world and construct knowledge" (Baker & Galasinski, 2001: 1). Environmental education policy text was explored through its own specific mechanisms and logic without reduction to any other phenomenon (*ibid*). Forces that could not be associated with education policy and environmental education in a first attempt without problematization were understood in the light of processes that contributed to environmental education policy discourse. These included historical, economic, political and social factors that were related to the genealogy of environmental education in Botswana's education system (see chapter 6). Deployment of Critical Discourse Analysis has enriched environmental education policy interpretation through informing the genealogical inquiry revealing how the social world is constructed and regulated.

With regard to this study, Critical Discourse Analysis has revealed the way power is diffused through the prevalence of discourses in the education system, at both the micro-level of individuals and classrooms and the macro-level of large-scale reform (Locke, 2004). However, Critical Discourse Analysis has some limitations. It has proved to be limited in providing insights into the findings from data unless these findings were extended through interviews, observation and historical document analysis to construct a 'fuller' picture than the one generated through the use of socio-linguistic tools. Irrespective of its limitations Critical Discourse Analysis remains a valuable method for deeper understanding of policy text.

12.4 Power relations in environmental education policy discourses

A post-structural analysis of policy text has revealed that deeper insight to policy text could be facilitated by an understanding of the socio-political conditions that affected text production which can be exposed by transitivity analysis. Transitivity assisted in locating the contradictions, assumptions, or silences and power relations within policy text. The Ministry of Education was predominantly constructed with material processes implying that it possesses more power in environmental education policy discourses. Teachers were predominantly constructed with mental and limited material processes. The implication of this situation may be that teachers are able to implement the propositions. For instance, they were expected to implement new instrumental knowledge like the 'right attitudes' and infusion of environmental education 'across the curriculum'. Learners were predominantly constructed with mental processes. They were then expected to 'learn' and change their 'attitudes' towards the environment (see section 7.3.1).

Evidence from this study indicates that teachers were exercising their disciplinary power in interpreting the RNPE and implementing environmental education. They used their own self-governing power techniques based on existing experiences and knowledge to construct environmental education (see chapters 10 and 11). They drew on the influence from Wildlife Clubs, Department of Wildlife and National Parks activities, knowledge of Science and the introduction of the School Environmental Policy and Management pack to normalise environmental education by equating it with Environmental Science, environmental management, and field trips. From the analysis of data it shows that although policy text is written in an imperative and directive style it does not provide adequate or consistent guidance to practitioners as to what should be done in implementing environmental education. In the case of the Botswana policy construction process, the imperative tone could be seen to 'mask' hybridity or uncertainty associated with the environmental discourse.

12.5 Enhancing environmental education quality

It emerged from the data that the research respondents are faced with some contextual problems that may require policy reconstruction or a constructive approach in taking environmental education policy forward to ensure quality.

Textbook and learning material

The research has revealed that a shortage of teaching and learning materials in the classroom affects policy interpretation and implementation (see section 10.6.6). The range of shortages was consistent in both rural and urban schools. Insufficient textbook supply in classrooms was a major issue. In some schools, shortages were aggravated by the supply of irrelevant textbooks. In these circumstances, the commissioning of the production of relevant textbooks to primary schools would appear to be a significant incentive for environmental education policy implementation. In addition, a long-term commitment to supply environmental education teaching and learning support material could be undertaken by the government. In order to ensure a reliable and continued supply of environmental education learning material, government could undertake to work closely with the private book publishers. To increase the teachers' power over pedagogical discourses, they could be assisted with skills and relevant resources to produce low-cost material through the regional Education Centres. Teachers and/or writers with relevant skills and knowledge to produce materials for both teachers and learners could be commissioned to develop materials on environmental education.

Professional support and training in environmental education

Evidence from this study shows that teachers lacked supervision and support to effectively teach environmental education. Supervision and support of teachers may give a moral boost and have an influence on the quality of teaching of environmental education. It may also ensure that teachers are guided to focus on teaching environmental education separating this from environmental management activities which are based on 'clean environment' discourses in schools. Evidence from the study (see section 10.5.3) shows that few head teachers show support to environmental education teaching and school environmental management (as it is). Teachers voiced their dissatisfaction with the lack of professional support from the administrative structure. They recommended

recruitment and deployment of an Environmental Education Officer to give them professional support in the implementation of environmental education in schools. I therefore propose that an official commitment to environmental education implementation that could go beyond the production of policy documents (e.g. syllabi and guidelines) and rhetoric statements could extend to the deployment of trained personnel to give professional support to teachers.

The research revealed that teachers need both pre-service and in-service training to enhance their knowledge and skills in teaching environmental education effectively (see section 10.4.4). Evidence from the critical discourse analysis of the official documents shows that '*teachers are encouraged to use local environment*'. To effectively enhance this aim teachers need guidance in localizing knowledge and on the pedagogies to use. Neglecting the professional role of education officials to explain curriculum innovations may result in teachers exercising their normalizing power techniques (as emerged through interviews with teachers regarding their involvement in environmental education activities). Although some teachers received in-service training in environmental education, a number remained untrained. Some teachers have been in service for many years (see table 10.2) and may be unable to adapt their teaching methods according to the revised curriculum. There appears to be a need for better provision of professional support and training. Training could be influential in the implementation of environmental education in schools and in enhancing environmental education programme objectives. It was revealed through this study that those teachers who received in-service training did not benefit much as the programmes were either too packed with activities or covered too many subject areas. To enhance efficiency in in-service training, subject-based workshops (see section 10.4.4) could be planned and implemented countrywide. Moreover, integration of environmental education programmes into conventional training, particularly in Colleges of Education should be strengthened. This could be enhanced through the introduction of environmental education courses, modules or units for pre-service teacher trainees.

Language of instruction in pedagogical discourses

In Botswana, there are two official and instructional languages, that is English and Setswana. Learners who begin primary education are taught in Setswana for one year, and then English becomes the sole language of instruction in all subjects except Setswana language lessons. Most of the learners in primary schools speak Setswana at home and much of the time in school. It has been revealed through this research that using English as the language of instruction was identified by teachers as a constraining factor in teaching and learning. Teachers claimed that it was difficult to understand some environment terminology and concepts in English even in the upper classes (see section 10.6.6). A major problem identified by teachers was complex vocabulary or terminology that is not even easy for teachers to translate for the learners.

English language proficiency among learners could affect knowledge transactions - teaching and learning. It was identified as a constraint in a totalizing manner e.g. 'the learners' or 'we'. This could be mediated by code-switching or using the language of the textbook to get nearer to the meaning of complex vocabulary. However, code switching was not preferred by the teachers as they claimed it may lead to misinterpretation or misrepresentation of the concept used (see section 10.6.6). The difficulty of engaging with complex environmental concepts and translating them from English to Setswana may be an indication that Setswana may not be "equipped to deal with scientific and technical concepts" (Colclough, Al-Samarrai, Rose, & Tembon, 2003; 2003: 191) or to the dominant environmental (western-scientific) discourse adopted by Botswana (which excluded indigenous knowledge and more relevant local discourses). Changing the policy discourse to be more located in local culture and language itself may address the language issues.

The impact of complex vocabulary in teaching and learning in environmental education may be addressed by improved teachers' knowledge and competencies in the subject matter while assessing the appropriateness of the language used at a specific primary school levels. Code switching and translation may water down subject content and compromise the reproduction of knowledge. The watering down of the complexity of the

language and its vocabulary usage may compromise environmental education integration and infusion into the curriculum as per policy recommendations. Furthermore training of subject advisors in environmental education and emphasis on environmental concepts could add value to environmental education epistemological and pedagogical discourses.

Institutional challenges

Schools operate in a regulatory environment which emphases rules and merit to promote the production of knowledge. Some of the challenges faced by schools that emerged are related to institutional culture and to teachers' claim of lack of knowledge or skills. Some teachers made claims such as "I have not been trained in environmental education, therefore I cannot do it properly" or "I attended the orientation workshop to the new lower primary syllabi that included environmental education but the training was not adequate" (see chapter 10). This kind of justification or exercise of technologies of power for not implementing environmental education could be addressed by government intervention. The government has the authority to address this problem through focused training and institutional support. This could be done through introducing a subject-based training in-service programme for primary school teachers so that teachers benefit more from each detailed training sessions. Teachers could be trained in environmental education or some aspect of it to make training effective and beneficial rather than exposing teachers to a congested programme covering many learning areas including environmental education. To effectively move from rhetoric to action, subject or modular-based training could potentially equip teachers with the necessary knowledge and teaching and learning methods strengthening their pedagogic authority. Environmental education focused training may assist teachers in differentiating it from environmental management and from conflating protection-conservation and sustainable use discourses. Furthermore, focused environmental education training may demystify the rationalist view of pro-environmental change by showing teachers that environmental education is a process contributing to social change and it takes time to influence learners, changing attitudes and behaviour towards the environment, as it is influenced by multiple contextual conditions.

The Ministry of Education could make it mandatory that environmental education is covered in the entrenched culture of examinations. It has emerged from data that some teachers felt that because environmental education is not examinable it is not a priority innovation in curriculum coverage (see section 10.6.7). This situation breeds tensions between policy and practice where teachers deploy power tactics to implicitly justify their non-compliance to policy. However, it also emerged that although teachers deploy normalizing strategies in the implementation of environmental education they see it as a valuable educational innovation to address environmental issues beyond the school boundaries into the community. They queried the lack of synergy between what they teach and the behaviour of community members towards the environment. The teachers' valuing of environmental education could be used as an entry point in supporting them and enhancing their epistemological and pedagogical practices, and in addressing institutional challenges.

It emerged from the research that there is considerable variation in school-community relationships across the research sites. This variation in school-community relations could be mediated by systemic reform which involves cohesiveness of school and community. This would probably allow mutual understanding of the roles of parents in education and facilitate a gradual acceptance of reforms. This may require the introduction of environmental education discourses that resonate with community knowledge, culture and priorities. A systemic approach may also call for responsible and accessible leadership, teachers who feel efficacious, autonomous and respected in their profession and committed to teaching and learning environmental education. A sustained involvement of the community in schooling has the potential to ensure parental support and cooperation on matters that need their assistance to enhance the goal of environmental education policy. It may improve school governance regarding decision-making and material support. The strengthening of school–community relationships could be facilitated through community sensitization campaigns on environmental matters and the required minimal parental support in providing labour and material, as well as through greater epistemological congruence as indicated above.

Recommendations informing environmental education policy processes

Taking into account the contextual and epistemological constraints identified that may arise in environmental education policy interpretation and implementation, I provide the following further recommendations for future environmental education policy processes:

- Critical policy reform depends upon commitment to achieving RNPE and environmental education goals. This could be realized through resources deployment, training, review and clarification of policy statements to minimize multiple interpretations that may compromise epistemological and pedagogical discourses.

- Supportive mechanisms – resources and their efficient use are required for environmental education policy implementation and progress. A monitoring and implementation plan may be put in place to enhance the teaching and learning of environmental education. To gain authenticity and some form of ownership, the plan could be a product of a systemic consultative process among stakeholders including teachers. The Ministry of Education may ensure that environmental education is covered in general school culture and inspection.

- Setting clearer priorities appears to be needed for achieving environmental education policy implementation goals which include the economic, political and social environment. These may shape the nature and context of environmental education policy discourse in ways that are broader than the current science-based discourses. There are also specific issues such as HIV/AIDS, Information Technology awareness program, Guidance and Counselling, and Population and Family Life competing for recognition in the curriculum and for resources for implementation. All these are important in modern Botswana society. However, issues of environment and natural resources transcend all other emerging issues as they form the basis for livelihoods and development in Botswana. The government of Botswana has adopted integration and infusion methods that could ensure that these issues are implemented across the curriculum with reduced cost and extra human resources and extra timetable space. The environmental education integration and infusion plan could extend the guidelines (see chapter 8) and clarify how environmental education could also

transcend into areas such as HIV/AIDS. Environmental education within a sustainability frame could be constituted as a priority area in epistemological and pedagogical discourses and could help to establish greater synergy across a range of issues such as those noted above. This would require a broadening of environmental education discourses as noted above. The *Environmental Education Guidelines* (Botswana Government, 2002) may be complex for a classroom teacher who has never attended any training in environmental education. To enhance effective implementation of environmental education the guidelines could be clarified further for each subject level, within this broader framing of environmental education discourse.

- Political commitment, effective leadership and the ability of government to implement policy are important if greater progress has to be made and if policy objectives are to be achieved. This research revealed that government, while committed to the policy objectives, was not ready or able to support their implementation. A broad policy statement is included in the RNPE, syllabi have been reviewed not for environmental education only, but an opportunity was seized to incorporate it during the review, and training is ongoing although the research participants indicated that it was not adequate. Political will, effective leadership and support need to be increased to ensure that textual rhetoric is translated into practice.

- A determination to eliminate implementation constraints/obstacles, including those relating to school tradition, professional culture, habit, etc., is necessary. The success of environmental education implementation may require changes in action that go well beyond discursive practices.

- A post-structural analysis has revealed that the government was ready to accept the introduction of environmental education into the education system. However, evidence from this study shows that the introduction of environmental education seems to have been poorly supported and hence there are some problems with implementing the new knowledge effectively across the curriculum (see section 9.3.1). The government used its power through the policy text to effect an

implementation with limited preparation for implementation. An incremental innovation approach may have given policy implementers the opportunity to reflect on practice and may help to prevent practitioners exercising the normalizing power techniques identified in this research. It could also help to address teachers' fear of losing their pedagogic and epistemological experiences. Such an approach may work well by building an effective coalition of ongoing support as a recipe for environmental education policy implementation. In such an approach all stakeholders involved in environmental education and support to primary education such as Ministry of Education Inspectorate, Primary Education Department, Curriculum Development and Evaluation, Teacher Training Development, Forestry, Department of Wildlife ad National parks, and NGOs such as the Kalahari Conservation Society and Association of Wildlife Clubs of Botswana, could work together towards assisting teachers in the epistemological and pedagogic practices in schools.

- The synergy between ministries implementing environmental policies, the Ministry of Education and non-governmental organisations supporting environmental education could be strengthened through an inter-sectoral approach (see section 9.5.4). Existing National Committees such as the National Environmental Education Committee and the Environmental Education Panel could be given a higher profile by including senior officers in their membership. This may empower these committees to make decisions to ensure progress in the implementation of environmental education. Currently, membership of these committees is low and consists mainly of middle management who has to consult extensively before committing their organizations to the process.

- As mentioned earlier in this section, evidence from the data has revealed that in-service teacher training is inadequate. This may be due to a number of factors including the competencies of the trainers. Training needs to be more focused and conducted by competent trainers in environmental education. Where capacity in expertise does not exist at the Department of Teacher Training, programme departments could train teachers instead of expecting the Department of Teacher

Training to do it. However, data has also revealed that some teachers have a less respect for in-service training. They believe in college or university training (see 9.5.1). This may explain why even those teachers who attended in-service training workshops claimed they did not benefit from such training. This may be mediated by adding value to in-service training such as certification, allocating some responsibilities and accreditation of in-service courses in recognition of the added knowledge and skills.

- A post-structural analysis has revealed that there is inadequate supervision and support for teachers in environmental education. This could be mediated by either equipping the current education officers with relevant skills to support teachers or recruiting and training environmental education specialists to support teachers. Capacity building to support teachers needs to filter down to school structures by training and supporting school heads and school management teams including heads of departments to enable them to support teachers.

- Finally, environmental education and education for sustainable use discourses need clarification for policy implementing agents. The Ministry of Education could make a statement defining its position on environmental education and education for sustainable development particularly in this early period of the United Nations Decade of Education for Sustainable Development. It could take up an education for sustainable development discourse and focus to strengthen environmental education discourses. A clearer position of the Ministry of Education on environmental education and education for sustainable development may help to eliminate some contradictions shown in policy documents and confusion caused by conservation and sustainable use discourses which are seemingly running parallel. The Ministry of Education's stand on the discourses would also enhance stronger epistemological and pedagogical discourses in schools. Taking education for sustainable development as an approach to strengthen environmental education would not only support the current RNPE but would also signal Botswana's contribution to the United Nations Decade of Education for Sustainable Development. In this process, however, it would

be important to clarify the meaning of education for sustainable development in local culture and context i.e. it should take account of discourses marginalized in the 1994 RNPE processes such as indigenous knowledge and discourses that address local priorities such as those that arise at the health-poverty-environment nexus, as is currently being explored in southern Africa.

12.6 Future research

As mentioned in chapter 1, this research was intended to provide some insights to inform future research in the field of environmental education policy. The model of policy construction in Botswana is linked to the neo-liberal democracy espousing consultation related to its national principles and National Vision 2016. This provides another site for future policy research to ascertain how far environmental education epistemological and pedagogical discourses are espousing the national principles and/or National Vision 2016. One of the limitations of this research was that policies such as National Vision 2016 were mentioned as enabling contexts and were not the focus of this research. Voices of the learners, parents and school principals were silenced as these were also not the focus of this study. However, an exploration of power relations associated with their participation in environmental education processes could provide further insights into environmental policy interpretation and implementation that may lead to a more informed policy review. In-depth research into pedagogical discourses to ascertain progress in the use of the environmental education infusion approach which unpacks institutional power relations associated with the classification and framing of knowledge and its representation in curriculum discourse, could also provide more depth to this policy review process. Further research into what enables or constrains synergy between ministries to facilitate environmental education implementation in both formal and non-formal education could also provide useful insights. Research into materials development and use is another area that needs attention particularly to address the problem of language use and complex concepts and how those affect teaching and learning of environmental education.

Further analysis of policy documents and what occurs in practice regarding the promotion of the development of mental, material, verbal, behavioural and relational processes focused on a specific subject could also provide another future area for research. This could include learners' voices to provide a deeper understanding of the processes in practice.

Post-structural document analysis has revealed that conservation-protection education and sustainability discourses are running parallel in Botswana environmental education policy documents (see chapters 8 and 10). This breeds tensions and contradictions in epistemological and pedagogic discourses. This scenario needs further investigation to explore how the teachers are dealing with the two discourses and where and how this affects teaching and learning in the classroom. Further research into the possibilities of previously marginalized discourses (such as indigenous knowledge) may also yield further insight into environmental education policy construction processes in Botswana.

12.7 Summary and conclusion

This concluding chapter is based on data from the previous chapters. It presents a reflection on the research, research process, research results and discussions. In this chapter I have synthesized some of the major findings and answers to the research questions. I indicated that I was more interested in the history of the discourses than their contradictions, although the historical analysis has pointed to many such contradictions. The purpose of providing a post-structural analysis of environmental education policy in Botswana was to gain a deeper understanding of the present discourses in schools.

It has emerged from the analysis that power relations have historically transcended environmental education policy discourses from global, regional to national levels. However, through recontextualization of policy texts, knowledge and power seem to be functioning and exercised at all levels of social interaction and are influencing change. The exercise of power through international bodies such as UNESCO and through bilateral and multilateral agreements has impacted on Botswana enabling her to enact policies to address socio-ecological crises or regulate them to sustainably utilize natural resources. Botswana has reacted to such technologies of power through the development

of environmental education policy. The discourses espoused by environmental coalitions have filtered down to national curriculum and have influenced classroom epistemological and pedagogical discourses. It emerged from this study that Botswana has inconsistently adopted sustainability and conservation-protection discourses, and has perpetuated discourses that were previously marginalized in colonial education times.

My conclusions and recommendations for environmental education policy development and interpretation (and implementation) are based on theory, policy construction and interpretation and implementation in schools. A reflection on the research process and outcomes indicate that they have been achieved. A post-structural approach to this research has enabled me to achieve the goals and provide answers to the research questions. My recommendations are aimed at providing insights that may be useful in future environmental education policy research, implementation and review in Botswana. The articulation of how global policy discourses play out in a national context may also provide useful insight to other countries who are faced with imperatives of new international globalizing discourses such as the Education for Sustainable Development discourse.

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APPENDICES

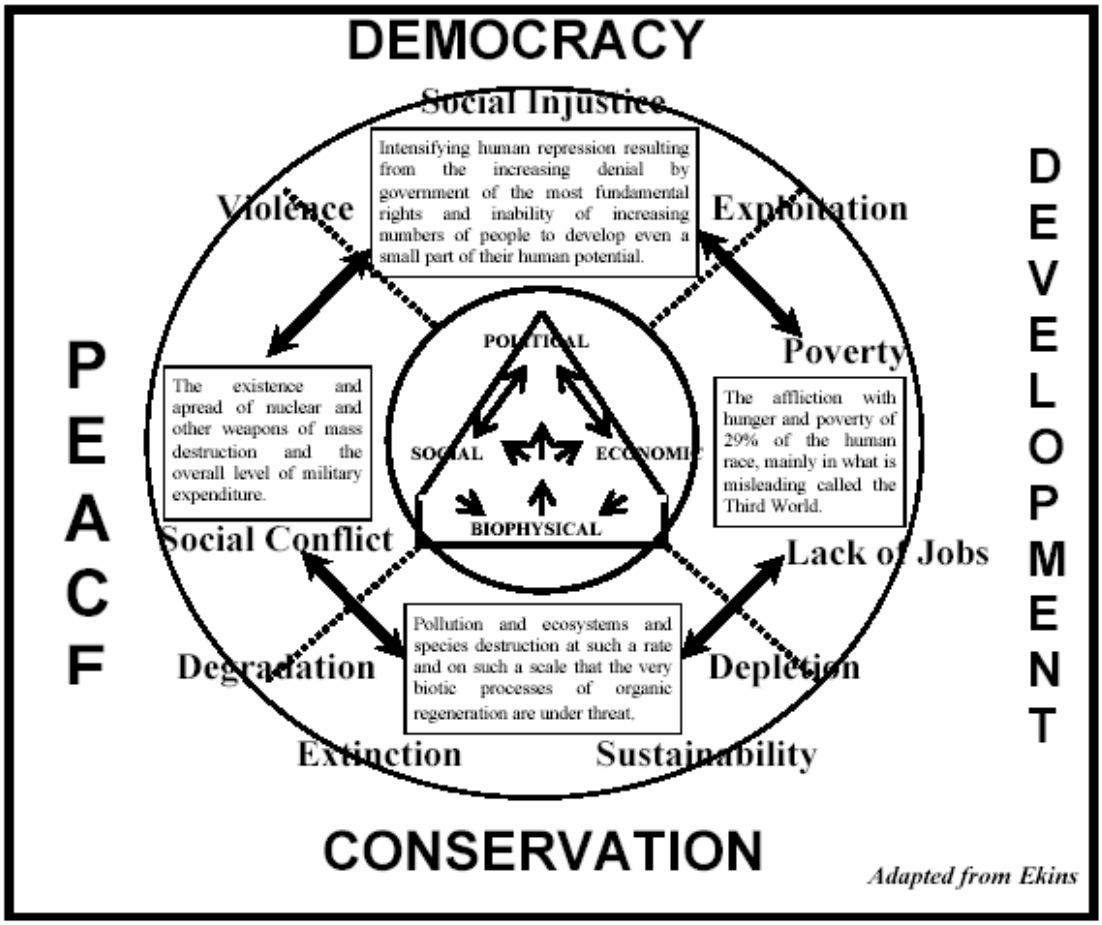
APPENDIX 2.1

Summary of global environmental events shaping EE policy discourses

Date	Event	Main features and outcomes
1992	Stockholm UN Conference on human and environment	Recommendation to establish IEEP by UNESCO-UNEP
1977	Tbilisi conference	Tbilisi Declaration – adopted 5 objectives and 12 principles of EE from the Belgrade Charter.
1980	World Conservation Strategy (WCS)	Described cornerstones of conservation policy emphasising on conservation and development discourses. Introduced the concept of sustainable development.
1987	WCED (Brundtland report)	Constituted sustainable development as central to the report linking it to poverty and environmental concerns. It constructed economic growth as the solution to poverty and environmental concerns. It added to south-north debates.
1992	The Earth Summit (UNCED)	Rio Declaration and Agenda 21. Chapter 36 was important to EE, it introduced education for sustainable living and encouraged nations to promote public awareness, education and training
1992	NGO Meeting at the Earth Summit	Devoted to EE, came up with a set of principles to promote equitable and sustainable societies, value-based education for social transformation
1997	Earth Summit +5	Reviewed and assessed Earth Summit progress after 5 years
2002	WSSD	Reviewed progress since 1992, recommitment to sustainable development initiatives
2005	UN DESD	UN declared a Decade of Education for sustainable development with 8 national principles for implementing the Decade.

APPENDIX 2.2

Inter-related environmental issues shaping EE policy discourses



APPENDIX 2.3

Summary showing the status of policy at the SADC sectoral level

Sector	Protocol in place	Protocol reference to environmental education	Programme activity on environmental education	Reference to environmental education in the SADC Regional Indicative Strategic Development Programme
Environment	None	None	Yes	Yes
Energy	Yes	Some	None	None
Fisheries	Yes	Yes	None	None
Forestry	Some	None	None	Yes
Food Security	None	None	None	Some
Mining	Yes	Yes	None	None
Tourism	Yes	Some	Some	Some
Water	Yes	Yes	None	Yes

Source: Obol, Allen & Springall Bach (2003)

APPENDIX 5.1

Field research questions (guide for officers/policy makers)

Policy initiation

1. Why was the 1994 RNPE initiated?
2. How was it initiated and commissioned?
3. Why was EE included in the 1994 RNPE? (Think of both local, regional and international context? (That is, was it an outcome of national and external influence?)
4. Who were the players? E.g. was it government policy making body (ies), stakeholders, or pressure groups including professional organs? (Name the players and how they participated?)
5. How was the policy going to be implemented?

Policy interpretation

1. What were the intensions of EE policy? And why?
2. How were the intensions to be achieved?
3. How did teachers perceive the policy, i.e. their understanding of the policy?
4. In their understanding(s), how was the policy to be implemented or is implemented? (To reflect on their understandings, their feelings, their competences, their reaction, i.e. acceptance or resistance, and relevance of the EE policy, method of introducing/teaching EE in the curriculum?).

Follow-up questions - Policy makers

1. Why did the MoE choose 'infusion' of EE across the curriculum instead of any other method/strategy?
2. How was the 'infused' programme going to be implemented?
3. What changes were you (policy makers) expecting from teachers and learners as a result of EE policy?
4. EE equips learners with skills and positive attitudes towards the environment (what were you expecting as the right attitude and skills?)

APPENDIX 5.2

Questions for politicians in the BDP, BNF and BCP

1. What is your party's policy on 'environmental issues and environmental education?

2. Who initiated the incorporation of 'environment' in the party policy?

3. What were your party's intensions of incorporating the 'environment' into the party policy?

4. How do you intend to implement this policy in schools or in the community?

5. What change do/did you expect from the public as a result of your party's policy on environmental matters?

APPENDIX 5.3

Field research questions (guide) for teachers focus groups

1. How did you learn about RNPE (and EE policy)?
2. Think back to when you first became involved with teaching EE, what were your first impressions?
3. What was the startup process like for you?
4. What was particularly helpful about the teaching environmental education?
5. What was particularly frustrating about teaching EE?
6. Is your understanding now better since the policy was implemented?
7. Is your teaching of EE now better since the policy was implemented?
8. If you had a chance to give feedback to the policy makers of this program, what advice would you give?
9. I wanted you to help me find out if the policy was well understood by practitioners like yourselves. I want to know how to improve the policy implementation process and what difference the policy makes to your teaching. Is there anything that we missed? Is there anything that you came wanting to say that you didn't get a chance to say?

Follow up questions if not covered by any of the above 9 points.

- How can the status of EE be improved or promoted?
- What can be done to improve your teaching of environmental education?
- What is your understanding of how EE policy should be implementation?
- What is your perception and feelings about EE and EE policy?
- What would you regard as a workable strategy to implement environmental education?

APPENDIX 5.4

Letter to the Office of the President

University of Botswana

Faculty of Education
Private Bag 0022, Gaborone
Botswana.

Telephone: 0267- 355-2202
Fax: 0267- 3185096
17th April 2005

Office Of The President
Bag 001
Gaborone.

Application to Conduct Research In Selected Schools in Botswana

The above mentioned subject refers.

Attached is my research proposal outlining the objectives of the research and how the research is going to be conducted. The topic for research is **"Genealogical analysis of environmental education policy in Botswana: Policy construction and interpretation"**

This research is a historical enquiry into how the policy on EE was initiated, formulated and how it is interpreted by implementers at school level. The research is based on the RNPE and the recommendation to introduce EE across the curriculum.

The research is intended to come up with recommendations that will serve as basis for future research and improvement of policy formulation process and implementation strategies. Data collection methods will includes the use of questionnaires and oral interviews.

Funding has been sourced from the University of Botswana and data collection will start as soon as your office grant permission to conduct this research.

For further information and clarification you can contact me by phone at **027 82 634 3527 (SA. before 1st June 05) or 355 2336/7 (UB) or Cell. No.71729401.**

Thank you.

M.J. Ketlhoilwe

PhD Scholar (Rhodes University),

Lecturer (UB Environmental Education Programme).

APPENDIX 5.5
Letter from Ministry of Education granting research permission

TELEPHONE: 3655400
TELEX: 2944 THUTO BD
FAX: 351624/3655458
REFERENCE: E 11/17 XXXV(63)

REPUBLIC OF BOTSWANA

MINISTRY OF EDUCATION
PRIVATE BAG 005
GABORONE
BOTSWANA

27 June 2005

Dear M J Ketlhoilwe

PERMISSION TO CONDUCT A RESEARCH- M J Ketlhoilwe

We acknowledge receipt of your research proposal to conduct a research in selected schools in Botswana, that will enquire about how the policy on environmental education was initiated, formulated and how implementers at school level interpret it.

You have been granted permission to conduct your research entitled:

GENEALOGICAL ANALYSIS OF ENVIRONMENTAL EDUCATION POLICY IN BOTSWANA: POLICY CONSTRUCTION AND INTERPRETATION.

You are however reminded that since you will be collecting data from the schools by interviewing teachers, you are requested not to inconvenience the pupils as much as possible.

You are reminded that the findings of your research should be used for the requirements to fulfil the award of PhD at Rhodes University Department of Education, Grahamstown, South Africa.

Thank you

M I Mokubung
For / Permanent Secretary

APPENDIX 5.6

Letter to School Head

University of Botswana

Faculty of Education
Private Bag 0022, Gaborone
Botswana.

Telephone: 0267- 355 - 2970
Cell phone: +267 71729401
Fax: 0267- 3185096

08 June 2005.

The School Head
Lerala Primary School
P.O. Box 5
Lerala.
Tel. 4954010

Environmental Education policy research project

The above subject refers.

I will be conducting research on environmental education policy in the Central District in July 2005. Your school has been sampled as one of the research site. I therefore request for permission and time to discussion environmental education policy with a group of about 5 to 7 teachers from your school on the 14th of July 2005 as per my tentative schedule attached. If there is any clash with school activities please suggest suitable time and let me know as soon as you can.

In preparation for this meeting I request your office to assist with the choice of teachers for this research and the following are some of the criteria that may help you.

1. It is voluntary to participate in this research
2. Academic qualifications of participants should be almost the same or the gap be narrow as much as possible
3. All participants should be teaching either lower or upper level

4. Senior teachers may participate as a group but not mixed with junior staff
5. Participants must be willing and free to talk in a group of 5 to 7 members.

I would prefer one group per a school, but in case there are more teachers willing to participate but forced not to because of the above criteria, I may accept not more than two groups per a school.

The focus of the discussion would be on teachers' understanding(s) environmental education and how teachers apply it in or out of classroom situation. In addition to the discussion all participants will be given a 10 minutes questionnaire to complete.

Please note that this research is not limited to those who teach Environmental Science only but extend to all willing and interested persons as the 1994 Revised National Policy on Education stipulate that environmental education be infused across the curriculum.

Thank you in anticipation.

M.J.Ketlhoilwe
Environmental Education Lecturer/Researcher
University of Botswana.

APPENDIX 5.7a

Focus groups discussion participants

Analysis Code	Name of Participants	Position	Name school	Date
FG1	Ms. Seane	Teacher	Motetshwane P.S	04/07/05
	Ms. Mangwane	Teacher	Motetshwane P.S	04/07/05
	Ms. Denman	Teacher	Motetshwane P.S	04/07/05
	Ms. Kopong	Teacher	Motetshwane P.S	04/07/05
	Ms. Motalaote.	Teacher	Motetshwane P.S	04/07/05
FG2	L. Tawana:	Teacher	Mmualefhe P.S.	05/07/05
	O. Selei	Teacher	Mmualefhe P.S.	05/07/05
	P. Mothanke:	Teacher	Mmualefhe P.S.	05/07/05
	M. Manglazi	Teacher	Mmualefhe P.S.	05/07/05
FG3	Ms Mosinyi	Teacher	Mmualefhe P.S.	05/07/05
	Ms Mothobi	Teacher	Mmualefhe P.S.	05/07/05
	Ms Moesi.	Teacher	Mmualefhe P.S.	05/07/05
FG4	M. Ramore	Teacher	Mogapinyana P.S.	07/07/05
	G. Saka	Teacher	Mogapinyana P.S.	07/07/05
	O.K. Gabosekwe.	Teacher	Mogapinyana P.S.	07/07/05
	G. Thana	Teacher	Mogapinyana P.S.	07/07/05
FG5	Ms. Thaba	Teacher	Monarch P. S.	11/07/05
	Ms. Maripe	Teacher	Monarch P. S.	11/07/05
	Ms. Bokgakga	Teacher	Monarch P. S.	11/07/05
	Ms. Gantsi	Teacher	Monarch P. S.	11/07/05
	Ms. Shadreck	Teacher	Monarch P. S.	11/07/05
	Ms. Duke.	Teacher	Monarch P. S.	11/07/05
FG6	Ms M. Mogotsi	Teacher	Lerala P. S.	14/07/05
	Ms G. Mmoloki	Teacher	Lerala P. S.	14/07/05
	Mr. M. Batshwenyo	Teacher	Lerala P. S.	14/07/05
	Ms M. Juel	Teacher	Lerala P. S.	14/07/05
	Mr. G. Richard	Teacher	Lerala P. S.	14/07/05
	Ms. T. Jimmy	Teacher	Lerala P. S.	14/07/05
FG7	N.C. Phole	Teacher	Lerala P. S.	14/07/05
	B. Motalaote	Teacher	Lerala P. S.	14/07/05
	R. Mpai	Teacher	Lerala P. S.	14/07/05
	G.F. Lesenyamotse.	Teacher	Lerala P. S.	14/07/05

APPENDIX 5.7b

Interviewed individual senior officers

Analysis code	Name	Position	Institution	Date
Not shown for ethical reasons	D. Ratstsi	Ag. Director	Department of Curriculum and Evaluation	25/07/05
	T.Gaothobogwe	Senior Wildlife Warden	Department of Wildlife and National Parks	02/08/05
	P. Bulawa	Lecturer	University of Botswana	02/08/05
	W. Tema	Deputy Director	Department of Tourism	03/08/05
	D.McColaugh	Executive Member and member of the National EE Panel	Birdlife Botswana	06/08/05
	M.E.Masisi	Education Development Consultant/Former Senior Curriculum Development Officer	Former Principal Education Officer, private consultant	08/08/05
	O. Disang	Senior Education Officer (EE)	Department of Curriculum and Evaluation	12/08/05
	P. Bulawa	Chairperson Political Education	Botswana Congress Party	12/08/05
	C. Motsisi	Principal Standards Officer And Executive member of Association of Wildlife Clubs of Botswana	Botswana Training Authority	18/08/05
	R.T. Sengalo	Standards Officer/Former Principal Education Officer (EE)	Botswana Training Authority	18/08/05

APPENDIX 5.8

Interview script

08/08/05 0800 **M.E.Masisi, Former curriculum Development officer**	**Coding of emerging themes**
Why was EE incorporated into the RNPE? Well environmental education was introduced into the RNPE for a number of factors. First, there was sufficient ground among practitioners and advocates for it to be. Secondly, it made a lot of educational sense for it to be incorporated, and you must also remember that there was a major opportunity for educational reform on issues of the environment in terms of the World Environment Conference to be responded to. And prior to that were a number of national based consultative initiatives on education. So it presented a wonderful opportunity for it to be incorporated. **International and Local influence to incorporated EE into the curriculum?** Well I do not think there was pressure per se, I think there was strong advocacy, it may be seen as pressure, but I wouldn't call it pressure because the Government or Botswana itself did not feel discomfort in the statement that were being made and advices that were been offered and the capital resources that were being offered to implement it or on consult it. They could have clearly said no. But clearly from the advice Botswana was getting especially from its partners internationally, it was apparent that they were doing it out of goodwill, because they have lessons that they were drawing from which were sharing with us. They were saying this is a good opportunity not to be missed, because you are reforming your education system now, and this is the best time to do it and to me honest it did make a lot of sense. I think the question could be how well we took that up, how ready we internalize and package our environmental education. But all told and done we did cease the opportunity. Locally, well MOE was a major player, members of NGOS fraternity in matters of environment were critical. There were some among them who had specific focus on environmental education such as Kalahari Conservation Society. From Ministry of Education I could name a few individuals who played a critical role, among them Philemon Ramatsui, who is a curriculum development specialist and a scientist and he saw a lot of virtue on that. Next in line, is Felicity Leburu-Sianga, she played a critical role. And I would like to mention my name I played a critical role. At the department of secondary at that time was M. Nganunu, she played a major role. I must also recognize the role played by my colleagues at that time, P. Moanakwena, D. Ratsatsi, and Rosemary	

Ford. In NGO fraternity, I must mention the names of D. McColaugh, W. Tema, and Isang Pilane. The DWNP, Wildlife Clubs of Botswana, BDF in terms protecting the open laborotary, and the University of Botswana particularly the faculty of education and outside the faculty they played a critical role. International we had bilateral relations SIDA, CIDA, USAID there are nameless.

Kalahari Conservation Society did submit to the education commission. Individual members of the Kalahari Conservation Society whose views were respected played a significant role in the evolution of the thinking on environmental education. They also did make a presentation from a technical point of view either when the policy was being formulated or when the application process. That is when decisions were being made on what to be infused, which are carrier subjects, how much is apportioned to environmental education, at what level, how do you spiral it, where doest it get intense, how doest it take flavour from a particular discipline and in ensuring consistency. I happen to be the Environmental Liaison Officer for the Ministry of Education so my job was to make sure that throughout the Ministry, matters of the environment are adhered to.

Why infusion instead of any other approach?

There a number of reasons advanced, not particularly unique to environmental education but really dictated by circumstances of limitations of resource. The most critical circumstances of limitations of here is lack of time and next was the human capacity. You will recall that there had been no teachers trained as specialist in environmental education, so it would not make sense to make environmental education a single subject on its own immediately that was really a matter of being **magical**. Secondly, environmental education was seen to be offended by the disciplines when they propagated certain behaviours, that negated what it wanted to do, so the best thing to ensure that those disciplines are in conformity with the principles and ideals of environmental education to begin with. And two, where would you like to have, the content, if it was convenient to have it in science discipline, have it there. You optimize the use of your resources, time, human resources and financial resources if when go for infusion approach. Lastly, there was a compelling argument that infusion gives an opportunity of ensuring that practice and discipline becomes a lifestyle, more than being learnt to commit the memory.

What were you expecting from teachers and learners

Frankly, when we started I was expecting teachers to say, no this is too much, too difficult, I am not trained in it, we couldn't see it, but I was actually surprised because they did see it, conceptually and in training of trainers, from pre-service and in-service they actually saw it. From learners I was expecting curiosity and to a large extent these

were fulfilled. However, I must say that when teachers were teaching a new reality emerged which from inside this should not have surprised us. Our education system is pyramidical, is very examination oriented, the tendency is one time and as one progresses becomes more 'successful' in the education enterprise they do not prioritize those things that are not examined, as they ought to, that is one. Two, I cannot fault education for this, but I can fault formal education and adherence to public education standards which really goes to civic conduct, it goes to local government extra. The success of our education system must also be measured in part by what is seen on the ground. When you go across many places you see an awful lot of … to the environment, it may be pollution of water resources which really scarce, littering or felling of trees, overgrazing, it seems to us we are not getting internal application… that part is still a major challenge.

Right attitudes and skills?
Right, its very difficult when you live in a place that does not have resources in abundance like Botswana not to know what is right for the environment is, and right us then and as is still now is very pathetic and its very logical. What is it that you need to do, what you do to learn what you need to know to make sure that you can sustain the environment in a manner that ensures that the environment sustains you. There are limitations of resources like water for instance. If you pollute the water, in a manner that you will need new water, completely new, and the heavens above us does not give us new water that is not right. If you are lay person in terms of your economic thinking and think that when you throw litter as you drive in the street you are creating employment that is not right. If you think that owning 6000 cattle on a limited piece of land, have them grazing continuously and think grass will grow and we experience periodic drought then you are not right.

Open discussion
Among other things I had in mind will be questions to do with

- what institutions may have developed over time to buttress environmental education?
- What the response of central government, local governments have been?
- What the responses towards environmental education have been in the political landscape?
- What the responses of the private sector have been?

Looking at the government as an institution there have been a lot of support from government, however I think the institutionalization of the support would have been better, because it seems to have relied on individuals who were there then, for M. Nganunu was supportive when she was there, at curriculum there were people who were

passionate about it, yourself included, there was no doubt about it. It is not there any more. You will recall that the DWNP use to have very keen education component its not so much as it is. I am not saying they are not doing anything. The problem is I do not see evolving and developing, it being monitored properly. If get these kids on educational tours and trips it seems there is no synergy between what they see on tours and what they are taught in class, what happens between MOE and DWNP. So it concerns me. Political landscape, I think all the parties are guilty of not taking environment on board, they are relegating it. Equally, people of Botswana are even guiltier for not forcing environment to be a political issue. Environment only becomes an issue when it comes conflicts over land use, and most of the times it becomes an issue when it comes to land abuse. In terms development institutions such as the university and NGOs sector, I think the government through NCSA legislation could have promulgated a law that would obligated those institution to have developed in a particular manner. In the same way I think in terms of physical policy there should have been incentives and disincentives for supporting the environment, and part of this disincentives and incentives should have gone towards developing institution for environmental education. Even at the UB, I do not see reason why we do not have a leading department on environmental education; I mean leading in the region. We have a fragile eco-system and all our supposed international experts on the Okavango and Kgalahadi are all non- Batswana and to me that is heretical, it not acceptable. We should localize this and make sure we know the best of the most of ourselves about ourselves, ourselves. It is only normal, its a sense of security and there is no nation state which is outside would come and know the most and the best of what is not precious for them. I my view I feel there is a lot we aught to do if we have to up-grade ourselves. If not we will continue seeing its light. And we can't depend on donor funding to do all these. Sorry, its a long way to go. With a PhD you have a lot to do. **Thank you for your time and the valuable insights you have willingly given me.**	

APPENDIX 5.9

Interviews script 12/08/05

In your opinion why EE incorporated in the Curriculum

There was a need by our government our nation. It was high time as a lot of other countries were going in that direction. And I believe the Rio summit also helped to motivate action taking on the side of our government. It actually for the country resources as you may be aware that there are not abundant.

On right skills and attitudes

Basically the right skills and attitudes is a general objective that needs to be clarified when going down to the pupils. It entails the skills, which are relevant to environment learning, which enable learning to interact with the environment that is preserving, nurturing, conserving.

I cannot grantee that teachers interpret the policy as laid down. Since I came attended a number of workshops and visited a number of schools and teachers were not really clear on what the right attitudes and right skills. At least those that we visited who had different interpretation we were able to give the official version and of course those that we have not visited may be giving it different interpretations. The truth is that there are a number of teachers who have different interpretations the fact being we have not been able to visit all of them. The kind of in-service we give to teachers is through w/shops. We train one who is supposed to train others and the information sis always distorted when it get other. We realize that when we get to school the information is not exactly as was given to the trainer. It shows that they miss some of the concepts and actually give the wrong picture. But is not of all them some do an effective job.

Teachers' feelings about EE policy

Teachers always say EE should have a special teacher or post to be remunerated, but my opinion which I always give to them, is it would suicidal to do that because it would mean that it does not apply to all of us, it is not the responsibility of all us to care about the environment. If we try to have a post, my view is that EE should be done through

passion. The moment we have post, you are to have fake people who claim to have passion for the environment, but their interest would be in the money not the subject itself, so we should not isolate it from other subject, we believe it is integral to all subjects and should remain as such, the moment we pick it up we will be creating the impression that that it is something that can existing on its own and it is not like that. All subjects have an environmental implications and its our responsibility to ensure that, all of us.

Thank you for your time and the valuable insights you have willingly given me.

APPENDIX 5.10

Teacher and school profile questionnaire

SECTION A
TEACHER AND CLASSROOM PROFILE

1. Name (optional) ----------

Education region ----------

2. Subject(s) you are teaching ----------

3. List your qualifications ----------

4. Which grades do you teach? ----------

5. How many years of teaching? ----------

6. How many learners do you have in your class? ----------

7. What is the primary language spoken by your learners?
---

8. Briefly describe the main methods and approaches that you use in your teaching (e.g. group work).

---

9. Briefly describe the resource materials that you use most often in your teaching.

---

10. Describe in-service training that you have previously been involved with.

---

11. Briefly describe what you know about the Revised National Policy on Education and environmental education

---

---

12. How do you understand the environment?

---

13. How do you understand the concept of environmental education?

---

14. Briefly describe your involvement in environmental education?

---

15. Briefly describe any issues that you are confronted with in your classroom and/or school context related to environmental education policy implementation.

SECTION B
SCHOOL AND COMMUNITY PROFILE

1. Name of school

---

2. Which grades are you teaching at your school?

---

3. What is the current status of environmental education at your school?

---

4. Do you have environmental education resources available at your school? List a few examples.

---

5. Do you have access to environmental education resource material outside your school? If so, list a few examples.

---

6. Does your school have any links to or use of environmental education centers? Describe these linkages, briefly.

---

7. Is your school governing body and principal supportive of curriculum changes in the school? Elaborate.

---

8. Briefly describe the socio-economic context of your school.

---

9. Can you identify any environmental issues in or near your school? Briefly describe them.

---

10. Briefly describe the community – school relationship and activities.

Thank you.

APPENDIX 5.11A

Observation notes from 3 schools

CLASSROM LESSONS' OBSERVATIONS

Name of Primary Schools

- Motetshwane,
- Mogapinyana, And
- Mmualefhe.

Subjects: Environmental Science, Social Studies and Science

Topic: Importance of vegetation, Characteristics of plants and Food chain.

Level: Standard 4, 6 and 7

Introduction:

In all classes I observed learners stood up to welcome me as I entered the classroom. In some classes the teachers asked me to give self-introduction, while in other classes the teacher introduced me. In another classroom, the teacher welcomed me to her class. I greeted the class. In all classes I observed learners were told that I was going to observe how they learn.

Lesson introduction: The lessons introductions were varied from one class to another. In some classes teachers started by introducing the topic, writing it on the chalkboard and asking pupils to explain what the topic meant or is all about. Some teachers would introduce the topic and reflect on previous lessons before proceeding with the new topic content. For instance in one school (FG2) the teacher started the lesson by making a reflection to standard 5 work by asking learners questions, learners raising up hands, all attentive and willing to answer, and giving chorus answers. In another lesson the teacher started by introducing the lesson topic in an interactive method (learner-centred), asking pupils questions, teacher-reinforces correct answers with positive remarks such as 'good' or 'I like that'. Pupils raise their hands to answer questions and answered question standing up. Questions were asked in English and pupils answered in English.

Uniform – In all schools all learners were in school uniform. However, some learners were putting on different private jerseys. My conclusion was that perhaps they did not have school jerseys and parents have decided to purchase school dresses or pants/shirts which are affordable and as Botswana is warm/hot most times of the year.

Classroom environment/situation or learning environment:
The classrooms were organized and neat.
Learners were seated in rows, facing each other. In some classes boys were separated from girls, that girls were seated one side while in some classes boys and girls were mixed per table, in neat rows to allow movement by the teacher and students. They were paying attention to the teacher, looking at the teacher and the chalkboard. However, some kept on looking at me which was not odd as I was a stranger in the classroom.

In all the classes I observed learners were relaxed. In one school learners were even having the opportunity to make comments about one another students' answers, either correcting or applauding. Learners were not only relaxed but also willingly participating e.g. calling the teacher's attention to point at them and even standing white raising their hands.

- Learning seemed to be taking place as pupils gave correct answers most of the time.
- There was no problem of class control observed
- The learners use chorus responses – e.g. 'yes' or 'no' to respond to the teachers' question.

Methods:

In all classes I observed, teachers used more than one teaching method in each lesson. They use question and answer, lecturing, and group work all were tailored towards learner centred as teachers were only making some explanations or lecturing for very few minutes then engaging the learners. All lessons were characterized by group work which lasted for most of the lesson time.

Pupils were given instructions on what to do when they get outside the classroom. The teachers emphasized that other classes are going and they be quite not to disturb them. Outside the classroom pupils collected samples of plants parts or small creatures (living things)for observation and description in classroom. Learners were enjoying the outdoor part of the lessons as they collected samples with enthusiasm. One class was instructed to observe living things, not to catch them, as they did not have any insects nets to use.

When they came back to class learners were grouped into two big groups or several small groups. Despite the large groups – pupils were disciplined and manageable. The teacher moved about the class checking on pupils' progress. In groups pupils were using English in their discussions. Few used their mother language. This activity was followed by the presentation (from their groups). Each time the presenter finished the learners clapped hands.

Those who did not take learners outside class used group work discussions followed by presentations of what the learners were working on.

During presentation presenters moved to the front to present, reading out the answers aloud. The rest listen attentively to the answers and clap hands at the end of each presentation. The pupils were discouraged from completing other learner's sentences or answer while still answering.

NB: In all the lessons observed pupils were not asking the teacher a question.

In answering pupils raise their hands first, then stand up to give their answers.

- The teacher varies her voice and pupils seem to be reacting to her voice. For instance paying more attention, raising their hands and sitting-up straight
- Teacher calling learners by name. However, some teachers were still learning their learners' names as this was the 3rd week of the new year and it is her new class.

Teaching resources

From the observations teachers had limited resources to use in the classroom. The main resources were a chalk and board. Otherwise there were limited pupils' books, plants samples collected by pupils, wall posters and manila paper. Teachers had made answer cards from manila papers. In some classroom there were limited pictures on the walls, while in others the classroom were full of teaching aids and walls characterised by charts and pupil's work portraying different subject topics.

Teacher's competencies

With regard to teachers' competencies most of them were competent in handling classes, delivering the subject and topic contents. The teacher were comfortable with the subject matter-related to the topic and used a variety of teaching methods effectively. All of them used the learner-centred methods. They deployed the multi-methods, e.g. fieldwork/outdoor, lecture and discussion and probing. The teacher showed interest in the subject matter/topic and the learners were enjoying their teaching.

However, there was no infusion of either attitudinal change or sustainable development concept in most lessons. There was no sign of resistance from either the teacher or pupils.

However some were able to introduce the thinking skills by asking learners high order questions – why, what else? One teacher linked content to suggestions from pupils. In another class the teacher was able to infuse environmental attitudes and bringing some critical thinking into the lesson through questioning.

In their teaching teachers used several techniques which indicate their competencies in teaching. Most of them were raising their voice for the learners to pay more attention. Similarly pupils were asked to raise their voices - they complied.

Concluding the lessons:

In one school (FG1) the class was given a long-term project in groups at the end of the lesson. The learners were asked to choose a tree to study. For instance, to find out if the tree is deciduous or evergreen etc. Pupils took notes from the chalkboard. In another

school the pupils were asked to continue with plant parts identification i.e. flowers, types etc. The conclusions of lessons were note taking and homework/project.

APPENDIC 5.11B

Lesson observation notes from one school

Name of school: Motetshwane Primary School

Date: 23rd January, 2006 **Time**: 11: 00 a.m.

Teacher: LO1 (teacher's identity protected) **Class**: Standard 7

Subject: Social Studies **Topic**: Importance of vegetation.

Introduction: The teacher welcomed me to her class. I greeted the class. She introduced me and told the class that I am going to observe how they learn. The teacher asked the pupils to put away books and announces that the next lesson is Social Studies and the topic is 'Importance of vegetation'. The teacher started by introducing the lesson topic in an interactive method (learner-centred).

- Teacher-reinforces correct answers with positive remarks such as 'good' or 'I like that'
- Pupils answer question standing up.
- Pupils raise their hands to answer questions.
- The pupils also move to the front of the class to raise an answer card or strip.

Pupils are grouped into small groups of 6 to 7 and given the task to perform.

They do group work in relative silence speaking softly.

The classroom is full of teaching aids and walls characterised by charts and pupil's work portraying different subject topics.
The teacher is raises her voice for the learners to pay more attention
She asked pupils to raise their voices - they comply.
During presentation presenters move to the front to present, reading out the answers aloud. The rest listen attentively to the answers and clap hands at the end of each presentation.
The pupils are discouraged from another learner's sentences or answer while still answering.

Teaching Aids – answer cards, chalk board, and dictionary.
NB: Pupils are not asking the teacher a question.

In answering pupils raise their hands first, then stand up to give their answers.
NB: The classroom is organized and neat.

Teacher: The teacher is enthusiastic/interested in the lesson and topic and is enjoying her teaching.
She is infusing environmental attitudes and bringing some critical thinking into the lesson through questioning.

NB: Only one learner could not say a word when he is asked to answer.

Field work: Pupils are given few minutes to go outside the classroom to observe some living things. They are instructed to be quite not to disturb other classes, and not to touch the animals they are going to observe.

From outside the classroom learners did the presentation (from their groups).
Each time the presenter finished the learners claps hands once.

At the end of the lesson the class is given a long term project in groups. The learners are to choose a tree to study. For instance, to find out if the tree is deciduous or evergreen etc. Pupils are taking notes from the chalk board.

APPENDIX 5.12

Final coding for data analysis

General codes	Categories
Genealogy	Institutionalization
	Internal influence
	International influence
	Power relations
	Policy development process
	Key partners
	Key players
	Teaching and learning methods
	Policy reform
	Eventalization
	Discursive and Non-discursive practice
	Power dispersal, reversal
	Decent and emergence
	Continuities and discontinuities
	Power distribution
	Voice and silences
Governmentality	Technique of resistance
	Power relations
	Teacher support
	Learner support material
	Professional development
	Teaching and learning methods
	Self-control
	Economic influence
	Non-discursive practice
	Learners attitude
	Teachers' competency

APPENDIX 5.13

Four modes of inference

	Deduction	Induction	Abduction	Retroduction
Fundamental structure/thought operations	To derive logically valid conclusions from given premises. To derive knowledge of individual phenomena from universal laws.	From a number of observations to draw universally valid conclusions about a whole population. To see similarities in a number of observations and draw the conclusion that these similarities also apply to non-studied cases. From observed co-variants to draw conclusions about law-like relations.	To interpret and recontextualised individual phenomena within a conceptual framework or a set of ideas. To be able to understand something in a new way by observing and interpreting this something in a new conceptual framework.	From a description and analysis of concrete phenomena to reconstruct the basic conditions for these to be what they are. \by way of thought operations and counterfactual thinking to argue towards transfactual conditions.
Formal logic	Yes	Yes	Yes and no	No
Strict logical inference	Yes	No	No	No
The central issue	What are the logical conclusions of the premises?	What is the element common for a number of observed entities and is it true also of a larger population?	What meaning is given to something interpreted within a particular conceptual framework?	What qualities must exist for something to be possible?
Strength	Provides rules and guidance for logical derivations and investigations of the logical validity in all argument.	Provides guidance in connection with empirical generalizations, and possibilities to calculate, in part, the precision of such generalizations.	Provides guidance for the interpretative processes by which we ascribe meaning to events in relation to larger context.	Provides knowledge transfactual conditions, structures and mechanisms that cannot be directly observed in the domain of the empirical
Limitations	Deduction does not say anything new about reality beyond what is already in the premises. It is strictly analytical.	Inductive inference can never be either analytical or empirically certain = the external limitations of induction. Induction is restrict to conclusions at the empirical level = the external limitations of induction.	There are no fixed criteria from which it is possible to assess in a definite way the validity of an abductive conclusion	There are no fixed criteria from which it would be possible to assess in a definite way the validity of a retroductive conclusion.
Important quality	Logical	Ability to master	Creativity and	Ability to

on the part of researcher	reasoning ability	statistical analysis	imagination	abstract
Examples	If A then B A Thus: B	From an investigation of the attitude of the representative sample of Swedes, draw the conclusion than 30% of the Swedish population is in favour of the EU.	Karl Marx reinterpretation/redescription of the historical materialist view.	For a ritual to be just a ritual there must exist, *inter alia*, emotionally loaded symbols and common notions of notions of inviolable/sacred values.

After Danermark, K., Ekstrom, M., Jakobsen, L., and Karlsson, J. (20020

APPENDIX 6.1

Terms of reference for the 1992 Education commission

In April 1992, a National Commission on Education was appointed by His Excellency the President, with the following Terms of Reference:

1. To review the current education system and its relevance; and identify problems and strategies for its further development in the context of Botswana's changing and complex economy.

2. To re-examine the structure of the education system and recommend a system that will guarantee universal access to basic education, whilst consolidating vocationalising the curriculum content at this level.

3. To advise on an education system that is sensitive and responsive to the aspirations of the people and the manpower requirements of the country.

4. To study the various possible methods of student streaming into vocational and academic groups at senior secondary level.

5. To study how the secondary structure at senior level may relate to the University of Botswana degree programmes and how the two programmes may best be reconciled.

6. To advise on the organisation and diversification of the secondary school curricula that will prepare adequately and effectively those that are unable to proceed with higher education.

7. To make recommendations to Government on the best and cost effective methods of implementation of the final recommendations.

Source: Report of the National Commission on Education 1993, page 1.

APPENDIX 6.2

Purpose and objectives of the 1991 National EE planning conference

The specific objectives of the conference were,

- To provide background information on environmental education in general, the World Conservation Strategy, the National Conservation Strategy, and environmental problems both worldwide and in Botswana
- To review the position of environmental education in all sectors of education in Botswana today and to generate recommendations for the future
- To identify constraints to improvement of environmental education in each sector
- To evaluate further training needs
- To evaluate research needs
- To evaluate coordination needs
- To draft an action plan.

Source. Cantrell, M. and Nganunu, M. (1992). *Environmental education in Botswana: A national planning conference. 7th – 10 October, 1991*. Gaborone: Government of Botswana/University of Botswana/Kalahari Conservation Society. Pp2.

APPENDIX 6.3

Recommendations of the 1991 Environmental Education Planning Conference

Primary Education

Curriculum Issues

- National goals for the teaching of environmental education should be clearly stated.
- Existing objectives should be re-emphasized
- Committee on integration should be set up to facilitate the writing of materials across the curriculum.
- Monitoring and evaluation of environmental education programme should be undertaken on a regular basis
- Environmental education components should be tested
- Curriculum content should have room for regional variation in the country
- The focus of environmental education should be on the processes creating environmental issues
- There should be the links between environmental education in pre-school, primary and higher levels of education.

Teacher training

- Teacher training should give students a background in environmental issues as well as appropriate methodologies for teaching environmental education. This should be within the context of other subjects of the curriculum
- In-service training should use the existing multiplier effect network for in-service training with the aim of training all concerned people**.**

Organizational and communication structures

- For effective environmental education, clear organizational and communication structures between different concerned bodies as well as at different operational levels should be set up.

Resources

- The integration committee should take advantage of issues and use activities that fall outside formal education
- District environmental education committees are needed to be a link between environmental education in schools and communities and to coordinate activities
- Local personnel should be used to address environmental issues that teachers are unable to address
- Funds should be made available for environmental education programmes and support systems for their implementation.

Secondary education

Curriculum

- Environmental education has a key role in secondary and should be incorporated into *all* subjects
- A national environmental education coordinator should be appointed to oversee the introduction of environmental education
- A curriculum panel for environmental education, with representation from all subject areas, should be formed
- An environmental education curriculum should be developed but integrated into present subjects
- Specific objectives should be formulated in the following areas: acquiring knowledge, gaining awareness, developing skills such as investigative, action and evaluation skills.
- The examination system should include continuous assessment since some environmental education objectives cannot be tested in written examinations
- The Cambridge Syndicate should be asked to include elements of environmental education relevant to Botswana
- A needs assessment be done on whether to introduce environmental education as a separate subject in senior secondary schools
- The Ministry of Education, with support from NGOs, should provide support to teachers in the form of funds, reading materials, videos, transport.

Teacher training

- A set of basic environmental education competencies should be formulated for all secondary school teachers and additional specific competencies identified for Science, Social Studies, Agriculture, Home Economics, Religious Education, Design and Technology, and Art
- An assessment should be made to determine which of these competencies are already catered for in everyday life of the college, its existing courses and extra curricular activities
- Aspects missing should be infused into existing courses or into new courses and a variety of extra curricular activities to promote environmental education should be encouraged
- Based on a needs assessment, an environmental education in-service programme for teachers should be developed
- Masters degree programmes in environmental education should be developed for curriculum developers, school coordinators and teacher educators
- Environmental education in-service for teacher educators should be provided.

School level

- To reinforce positive environmental attitudes in students incentives including competitions, prizes or entertainment as reward for community work should be given
- School projects should be encouraged and supervised by teachers (e.g. ponds, rockeries, compost heaps, aquaria).
- A student ***environmental education council*** should be formed at village and town level to coordinate local environmental education activities and to infuse environmental awareness into existing youth groups as 4B and school clubs. A parent could act as the coordinator and a teacher as a technical adviser.

Tertiary education

- The aim of the proposed environmental education programme at tertiary level would be to provide staff and students with the necessary knowledge, skills and values to mobilize them into addressing environmental issues.

The objectives were

- to establish a set of values to underscore the environmental education programmes at each tertiary institution,
- to demonstrate to the community at large, principles of recycling, energy saving and other resource conservation measures,
- to infuse environmental education into existing courses at tertiary level, and to ensure that all students have access to a core course in environmental education (cross faculty or cross-department) to facilitate the infusion process in later more specialized programmes
- to make students aware of the health and safety aspects of the technology and waste products in their discipline, both for themselves, their immediate environment and the biosphere
- to make students aware of opportunity costs of the various alternative strategies
- to make academic staff aware of environmental issues pertinent to Botswana
- to establish research programmes both by faculties and their students on environmental issues and environmental education.

Actions

- The formation of the National Tertiary Environmental Panel (similar to coordinating committee) is proposed with close links to the Environmental Resources Board. The panel should seize on initiatives written into NDP7 and the NCS. High level representation of various institutions at the formation of this board is crucial. Its role would be in assisting and encouraging tertiary level institutions to
- Providing environmental education workshops for academic staff; both for the orientation of new staff to pressing environmental issues in Botswana and also to

assist longer serving staff to infuse environmental education into their subject areas

- Providing workshops on health and safety In both cases, common workshops for various institutions are to be encouraged
- Assisting institutions in the design of flexible curricula
- Supporting student and staff extra curricular clubs and action groups on environmental matters
- Stimulating the development of new undergraduate and postgraduate programmes on environmental issues and education
- Coordinating the airing of key environmental themes for institutions to focus on periodically
- Monitoring and evaluating the impact of environmental education at the various institutions
- Attractions funds to support such initiatives.

Non-formal Education

- The non-formal sector is diverse in terms of organizations, target groups and media employed. However, participants in this group share common goals. These factors influenced there commendations which were made:

Recommendations

- Improve co-ordination was required through an umbrella body or coordination committee. The NCS Coordination Agency would play a central but not exclusive role in this regard. NGOs, the private sector, Ministry of Education and other government departments should be included. However, organizations should cooperate to make best use of existing non-formal education programmes and infrastructure before developing new initiatives
- Basis education related to non-formal environmental education is required on current levels of awareness and effectiveness of programmes. Relevant organizations should be encouraged to undertake applied research in environmental education.

- Since environmental education is a relatively new discipline in Botswana there was a need for training. This aspect should be investigated further by the umbrella body to provide for the needs of both trainers and trainees involved in non-formal environmental education.
- For non-formal environmental education to be accorded its rightful place in the education system in Botswana, it should be supported by appropriate legislation. A national Policy on (non-formal) environmental education be formulated through the umbrella body.
- Non-formal environmental education prgogrammes require improved funding. The umbrella body should identify priorities for non-formal environmental education to present, through the NCS Coordination Agency, to donors for funding.
- An environmental education association should be established to provide a forum for addressing some of the recommendations generated by the conference.
- environmental educators should take care to cater for the disabled.
- All aspects of environmental education should be gender neutral. In Botswana, the main environmental concerns are those of water, deforestation, over-grazing, veld products, overpopulation, pollution and wildlife. Within all these areas, women are significant users and in many cases, victims of environmental degradation. It was therefore recommended that issues be addressed from a gender sensitive and holistic perspective in order for current class and gender inequalities to be identified and addressed.

Source: Cantrell, M. and Nganunu, M. (1992). *Environmental education in Botswana: A national planning conference. 7th – 10th October, 1991*. Gaborone: Government of Botswana/University of Botswana/Kalahari Conservation Society. Pp16 – 18

APPENDIX 10.1

Respondents who participated in the questionnaire (optional)[14]

Date	Name	School
11/07/05	M.J. Lobelo	Monarch
05/07/05	M. Manglazi	Mmualefhe
05/07/05	O. Selei	Mmualefhe
05/07/05	Mothobi,	Mmualefhe
14/07/05	Jimmy	Lerala
05/07/05	N. Moesi,	Mmualefhe
07/07/05	G. Thana,	Mogapinyana
07/07/05	M., Ramore	Mogapinyana
07/07/05	G. Gabosekwe,	Mogapinyana
04/07/05	K.A. Motalaote	Motetshwane
04/07/05	Mrs. Seane,	Motetshwane
05/07/05	M.,P.Motlhabane,	Mmualefhe
05/07/05	G. L. Mosinyi	Mmualefhe
07/07/05	Ms. Saka.	Mogapinyana

APPENDIX 10.2

The respondents teaching grades one to seven

Grades	Number of respondents	Percentages
1	4	11.4
2	6	17.2
3	4	11.4
4	8	22.9
5	5	14.3
6	5	14.3
7	3	8.6
Total	35	100

[14] Some participants did not disclose their names as it was optional.

APPENDIX 10.3

Subjects at Primary school level

Lower Primary (1 - 4)

1. Creative and Performing Arts
2. English
3. Environmental Science
4. Mathematics
5. Setswana
6. Science

Upper Primary level (5 - 7)

7. Agriculture
8. Creative and Performing Arts
9. English
10. Mathematics
11. Setswana
12. Religious and Moral Education
13. Science and
14. Social Studies.

APPENDIX 10.4

Learners per class

Number of learners per class	Number of respondents	Percentages
14	1	2.9
21	1	2.9
24	1	2.9
26	3	8.6
27	2	5.7
28	2	5.7
29	4	11.4
30	5	14.3
31	6	17.2
32	5	14.3
33	4	11.4
39	1	2.9
Total	**35**	**100**

APPENDIX 10.5

Sources of information about the RNPE and EE

Sources	Frequency	Percentage
College	5	14.3
Radio	10	28.6
Newspapers	9	25.7
Educational magazines	2	5.7
Colleagues	3	8.6
Official correspondence	4	11.4
Do not know	2	5.7
Totals	**35**	**100**

PLATE 10A

Teacher assisting learner in the classroom

PLATE 10B

An indoor activity practicing learner-centred education

PLATE 10C

An outdoor activity within school grounds

PLATE 10D

Teachers show casing learners recycling projects